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Notes by the Way

"Health is the foundation of all our physical happiness."—*Herder.*

The work of the Kyrle Society progresses favourably. The planting of disused burial grounds with flowers, and their conversion into open spaces for the recreation of the poor, are works of real good which this society undertakes. We believe the society also undertakes voluntarily, and as a true work of good, the decoration of hospital wards and workhouses. Whatever tends to brighten the life of the sick and poor is a true gain to the cause of health and happiness.

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Under the heading of "Small-pox in Kent," a statement containing certain items instructive enough from a health-point of view, has been recently published. It would seem that about a month ago, a Sunderland collier put in at Ramsgate. In the former town small-pox was rife; and one of the seamen, feeling unwell, went ashore at Ramsgate for the purpose of consulting a doctor. The man, a native of Whitstable, was ordered home. Soon after his arrival at home, and after calling on a relative, he became delirious, and appears in the course of his wanderings to have entered a public-house. On being taken home, small-pox became developed; the patient dying in three or four days of a virulent type of the disease. Now comes the interesting part of this history. The barmaid who served the man in the public-house, as well as several other persons, were stricken with small-pox; and, as we write, are said to be under treatment in a special hospital tent, which has wisely been erected to secure the perfect isolation of the cases. The disease, it is said, has also appeared at Canterbury.

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If the above account is correct, the problem of small-pox infection becomes of complicated kind. We believe it is not denied that infection may pass from a patient to other persons at an early stage of the ailment; and, as the above account shows, the seaman had been ailing for some days prior to his arrival at Whitstable. There seems little doubt, therefore, that the infection, caught probably at Sunderland, had already developed into the full disease, *minus* its outward signs, when the unfortunate visit to the public-house was paid. Certainly, we know that at the close of the disease—as also at the termination of scarlet-fever—when the skin-scales, charged with the fever-poison, are given off, there is high risk of infection; and it is at this latter period that measures of personal disinfection directed to the care of the skin, are mostly to be practised. But it would appear that in the malignant types of fevers the termination or convalescent stage is not the only period when the disease may be propagated. Hence we are taught the lesson that a fever-patient should be isolated and thoroughly separated from the first sign or symptom of the disease.

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At most railway-stations, and certainly at all the great termini, there exist boxes for the reception of newspapers and periodicals, intended for the amusement of patients in infirmaries, and for the inmates of workhouses and other institutions. Railway passengers are, doubtless, often in a hurry, and the exigencies of business do not invariably permit of a journey to the boxes in question—which, by the way, are too frequently placed in inconvenient situations, and thus apt to be overlooked. But most of us should spare a minute or two to deposit in the boxes, the periodicals we fling under the carriage-seats, or leave behind us in the compartment when we arrive at our journey's end, if we only thought of the pleasure and profit which the sick and poor derive from a perusal of a recent newspaper or magazine. And, by the way, could not our railway-managers, in the interests of poor humanity, issue an order to their porters, that the newspapers gathered from the trains, should be deposited in the boxes of hospitals, &c., where such receptacles exist?

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We have been led to make the above remarks by the perusal of a letter from Dr. Dawson W. Turner, addressed to the Editor of the *Daily News*. Dr. Turner appeals for literature for the use of hospital patients, and intimates that any parcels addressed to the head porters of the Westminster or Charing-Cross Hospitals will be thankfully received—carriage paid, of course. We trust that all the hospitals of London and the provinces will receive like presents; and those of our readers who have parcels of old magazines and books to spare could not do a kinder thing than to forward them as above directed.

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If we were inclined to add one word to the above appeal, we should emphatically say, let the literature sent be such as will really interest the sick and poor. There is too much of the prison idea (in respect of "selected" literature, we mean) in the books provided for hospital and workhouse use. Over and over again, we have heard patients ask for books they could enjoy reading, in place of the perennial "goody goody" volumes with which they are too often exclusively supplied. Books of "The Afflicted Man's Companion" type are not calculated to inspire cheerfulness; and there need be no conflict between religious and secular literature in the matter. For our own part, we would like to see books that would provoke a hearty laugh—of the type, for example, of Max Adeler's "Out of the Hurly Burly"—and novels, such as those of Charles Reade, James Payn, and Wilkie Collins, literally breathing with human interest—in every hospital library. There is nothing half so powerful as good, sound literature for keeping the mind off bodily and mental trouble; and the sooner some of our hospitals take the hint we have given, the better will it be for the patients.

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That the difficult problem of "smokeless cities" is susceptible of being solved without materially interfering with the British idea of "a comfortable open fire," seems proved by the fact that the "Yniscedwyn Smokeless Coal Company," of 77, Cornhill, London, E.C., are prepared to supply a fuel which, besides being smokeless, is highly economical, gives off an immense amount of heat, and is admirably adapted for cooking purposes. Those who are interested in the subject of an economic coal supply should read the pamphlet which the company send free to inquirers.

Original Essays

"Life is not to live, but to be well."—*Martial.*

DISEASE AND THE TRANSFORMATIONS OF MAN.

By Dr. Andrew Wilson.

All science is practically agreed that living beings have come to their present forms and condition through long ages of variation and change. New species are produced through the modification of the old. Repeated departures from old types can be traced in the fossil history of animals and plants, and the worlds of life are thus seen to owe their many-hued aspects to the alterations which food, climate, and other conditions have produced in the species of the past. This is the main contention of that theory of nature to which the general name of "Evolution" or "Development" has been applied. The variations of animals and plants have produced new races, and these races, varying in their turn, give rise to forms which so far depart from the type with which the process started that they appear as new species. The zoologist and botanist can point to countless examples of variation in living beings; and that such has been nature's way in the past history of life is abundantly proved by many considerations. Thus the development of animals and plants affords abundant evidence of the fact that living species to-day have been made what they are by the alteration, for better or for worse, of pre-existing forms of life. The frog begins its life as a fish—the well-known tadpole—it breathes by gills and possesses the heart of a fish. But as time passes, it develops onwards into a form resembling that of the newt or eft, and finally discarding its tail, and developing lungs, it leaves the water and becomes the air-breathing frog. The only explanation of this curious life-history seems to be that which assumes that the frog is the last term in a development, which began when some far-back fish-ancestor developed lungs in addition to its gills, and which continued as this eft-like form in turn assumed the frog-characters. The history of a frog is, in fact, a panoramic picture of the development of its race.

In addition to the evidence of development, we find the facts of geology, the distribution of life on the earth, the presence of rudimentary organs in animals and plants, the items of degeneration, &c., to aid in establishing this great idea or doctrine of evolution. Readers who wish for a full statement of the evidence in question, will find such formulated and illustrated in the writer's "Chapters on Evolution" (Chatto & Windus). In the present instance, we have cited the general facts of development merely by way of preface to what promises to be a study of much practical interest in connection with human health and welfare. Man's concerns do not lie outside the scope of development, although they are no doubt largely modified by the circumstances of his life and habits. In this connection, recent studies in the work of *disease*, as producing changes and variations in human beings, become of high value. Naturalists, as we have seen, tell us that such circumstances as food, climate, &c., work changes in living forms; and of the truth of this axiom which credits outward causes with affecting living beings, no one may entertain a doubt. But if the opinion of a distinguished scientist, Professor Klebs (of Zurich), may be relied upon, it would seem probable that we must credit internal or inside causes with at least a share of the work of producing variation in living beings. And as regards man, there seems every reason to believe that in this work, disease has played a part hitherto greatly overlooked, but not on that account the less to be attentively studied.

The law that "like begets like" (scientifically known as "the law of *heredity*") is, of course, popularly understood and demonstrated as an essential power and factor in causing living beings to resemble their parents. But when change or alteration has been produced in one generation, this law, for the time being overruled, again asserts its sway and reproduces the changed state, as formerly it begot the natural structure. The latter observation, as is well known, holds highly true of diseased conditions. We know, only too well, how departures from health are transmitted to offspring, and how consumption, scrofula, epilepsy, insanity, and even the tendency to intemperance, are "bred in the bone," and reappear, often with fatal exactitude, in the generations succeeding the affected parents. Six-fingered parents, as we shall hereafter see, have their deformities repeated in their children. Mr. Clement Lucas tells us (Guy's Hospital Reports, Vol. XXV.) that he has been able to trace even "a crooked little finger through three generations." We may thus conceive that in due time, such repeated and transmitted peculiarities, mental and bodily, may come to represent part and parcel of the history of the individuals included within the limits of the family, and serious departures from the natural and normal type may thus be engendered.

Professor Klebs has directed special attention to the influence of the condition called *cretinism* on human variation and change. The *cretins* are found on the highlands of Central Europe—in Switzerland, Bavaria, and Austria. It is in these districts that the disease known as *goître* exists. This malady, believed to be produced by over-hardness of the drinking-water, appears as an enlargement of a gland (*thyroid gland*) in the neck, and causes a terrible deformity of that region of the body. Cretinism is found associated with goître. The subjects of this latter condition live practically in a state of bodily and mental degeneration. They are often idiotic in character, and their bodily frames are stunted and dwarfed in a remarkable manner. Professor Klebs, referring to the results of this transmitted degeneracy of bone and body generally, inclines to believe that a dwarfed race of human beings may possibly have arisen in the past from this source of variation. In such places on the European Continent as Salzburg, Puizgau, and Pongau, the natives are said to appear in striking contrast (owing to the influence of cretinism) in bodily size when compared with such of their kith and kin as have been compelled to quit these districts and settle in healthier localities.

In mountainous districts, however, cases of the opposite condition, namely, of *excessive growth*, may also be met with. Inhabitants of mountainous districts are said to present great irregularity in size, and, on the whole, to exhibit a shorter stature than the dwellers in the lowlands. It is probable, of course, that this decrease of stature may depend on causes connected with a life spent at a high level, and with the special peculiarities of breathing, &c., which a mountain life entails. Professor Klebs inclines to the belief that the extreme stature occasionally seen is pro-

A Valuable Invention.—It is gratifying to learn that Mr. R. Adams, of 17, Blackman-street, London, S.E., whose fanlight-openers and silent door-springs are being extensively used, has received large orders for his Patent Reversible Window. The sashes, although they slide up and down in the usual way, can be instantly turned inside out, enabling anyone to clean each side of the glass with ease, while standing in the room.—[Advt.]

duced by diseased, or, at least, by unusual and unnatural causes. At Elm, we are told, a remarkable instance occurred, in which a man began to grow at the late age of thirty-six, the increase continuing till his death, six years later. In the same locality such cases are not unknown. Giant-growth in mountainous regions is thus a singular fact. It has been suggested that there exists some connection between this growth and the nature of the soil. The conditions, however, which thus seem to stimulate nutrition and bodily increase are, as yet, unknown. All explanations of these curious histories are, at present, to be found only in the domain of pure conjecture.

Another peculiarity, to which the studies of Professor Klebs have directed attention, is the development of colour in the skin under certain diseased conditions. It is a well-known fact of medicine, that "bronzing" of the skin is found associated with disease of certain organs, lying one above each kidney, and named "suprarenal bodies." The functions of these bodies are unknown; but they are believed, like the spleen and other glands, to be connected with the elaboration of the blood. Dr. Addison first noted that the "bronzing" of the skin, most marked on face, neck, arms, &c., appeared to be a result of disease of the "suprarenal bodies." His own words were—speaking of one case,—"that, but for the features, the patient might have been mistaken for a mulatto." Now, a second curious fact has been noted, namely, that these organs, which appear to be centres of colour-production in the body, possess their central parts coloured or "pigmented" in the dark races of mankind, and in dark individuals belonging to fair races. Hence it has been inferred that changes of colour in man, due to various causes, and affecting hair and skin, may take their origin from diseased or unnatural conditions affecting these "suprarenal bodies."

A step further in the direction of probabilities founded on a study of the conditions of human life, lands us, according to Professor Klebs, in a curious field of speculation. What may have begun as a simple disease, by inheritance, may have come to be propagated as a natural character of a race. The Negro race, according to this view, may possibly have sprung from a white race. Diseased changes, set up in the colour-organs of a white race, may have resulted in the production of a coloured or dark race. It is well known that *malarious* conditions—that is to say, the influences derived from swamps and morasses—affect the spleen and allied glands, and produce diseased states, of which "ague" is a familiar example. The negroes have had their origin, according to Klebs, in swampy districts; and the production of a dark race is thus viewed as a matter of diseased or abnormal action. Considering also that the evil influences of the swamps have been proved to be due to a *bacillus* or living germ, it would seem as though the "germ theory" might be destined to play a part in explaining the evolution of mankind. Whether or not Professor Klebs' views are correct, time alone can show. But there is a latent probability in their terms which should commend them to the criticism of medical science. It will assuredly increase our sense of the marvellous in the history of living beings, if disease should be proved to be a more potent factor than we have hitherto deemed it in inducing changes and variations in the world of life.

To the subject of transmitted peculiarities in other directions than those above indicated, we shall return in our next number.

Pure Water is such a vital necessity that, without it, illness is certain. None are more prone to the ill effects when impure than the young. To ensure a pure supply send a post-card to the London and General Water Purifying Company, Limited, 157, Strand, London W.C., who will return particulars post free.—[Advt.]

EXAMINATIONS, SCHOOLS, AND HEALTH.

By Geo. G. Chisholm, M.A., B.Sc.

FOURTH PAPER.

In last paper (see Health, No. 50) a suggestion was made for obviating the worst tendencies of the present method of applying the principle of payment by results. But this is not the only evil in our Board School system. The results obtained in our Board Schools would seem to show that harm is wrought by attempting too much—so much that what is attempted cannot be properly carried out, and what is effected, is done at the cost of an injurious strain on teacher and pupil.

This was especially likely to be the case at the starting of the system. For it must always be remembered that the children in our Board Schools enter upon school-life under totally different conditions from children of the middle and upper classes. Mr. Matthew Arnold was struck by the fact that in London schools he found whole classes composed of children of about twelve years of age, in which not one child was able to tell him what a "steed" or what a "ford" was. He goes on to say: "Take thirty of our own children between the ages of ten and thirteen, and you will not find one of them who does not know what a *steed* is or what a *ford* is. You have, therefore, a totally different material to work upon."

I am afraid that Mr. Matthew Arnold rates the knowledge of "our own children" somewhat too highly, but no one will question his concluding observation that, in Board-school children we have a totally different material to work upon. Indeed the depth and kind of ignorance sometimes manifested among the children brought into school by the Education Act, can scarcely be imagined by those who have not been made directly acquainted with the facts, and scarcely realised even by those who have.

That being the case, what should we attempt to teach such children? All that is required in the standards is reading, writing, and arithmetic, and about these three subjects there can be no dispute. Every one must recognise them as essential in any scheme of education, or that whatever is attempted must certainly include the teaching of every one of these. Under the head of "writing," however, is included spelling, a branch noted by several inspectors as one of prime difficulty in the teaching of Board-school children. To me, it seems that much less importance might with advantage be attached to this branch. It has really no educational value, and the importance assigned to it in Board-schools, I can only regard as a sort of superstition arising from the estimate we are in the habit of putting on correct spelling as a mark of a good education in children who have been brought up in middle and upper-class schools.

But besides the three indispensable subjects of reading, writing, and arithmetic, encouragement is given to the

Medical and Sanitary Exhibition, 1881.—Award of Merit.—Diabetes. Van Abbott's Gluten Bread, and all other suitable Foods for Diabetic Patients. Dietary Tables and Price Lists post-free on application. Van Abbott, 5, Princes-street, Cavendish-square, W.—Delicate Children and Adults Suffering from Nervous Depression. Van Abbott's Hypophosphite of Lime Biscuits, for Delicate Children, especially those suffering from Deficiency of Bone, Weak Joints, or Debility, and Adults suffering from Nervous Depression. Each Biscuit contains five grains of the Hypophosphite of Lime. "Quite free from disagreeable taste, and taken willingly by Children, and certainly provide an excellent means of administering this valuable compound. Our analysis proves the accuracy of the printed descriptions on the labels of the boxes. The Biscuits were suggested by Mr. W. Adams, of the Orthopædic and Great Northern Hospitals." — *Lancet*, Nov. 4, 1876.—Van Abbott, 5, Princes-street, Cavendish-square.—[Advt.]

teaching of other subjects in classes, and to others again, which are taught to individual pupils who are found capable of receiving a higher education than the average run of boys and girls in Board-schools. This latter class of subjects, known as "specific subjects," may be left out of account in treating of elementary education from our present point of view—namely with reference to health. All that need be said on that matter is, that the chief danger lies in taking too many subjects; but the code wisely limits the number in which a boy or girl may be presented for examination to two.

But let us look at what are called the class-subjects. These are English, including parsing and analysis of sentences, geography, including some knowledge of physical geography, and elementary science, for girls also needlework. As for needlework, in the case of girls much might be said in favour of its being made compulsory, and with regard to the other topics, it may readily be admitted that they are all very good in their way. They all have a real value in education. Even parsing may be used as a genuine educational instrument, though in this subject it is very easy to go altogether beyond the capacities of children.

But the question is whether the encouragement given to these subjects is the best way of carrying the children beyond the mere requirements of the standards. Surely every one will admit that no education can be called a good one which results in giving a distaste for learning; and such distaste is certain to be created if the children have to be urged on to the acquisition of extra subjects at the expense of their health. However good, then, these subjects may be in themselves, it will depend upon circumstances whether they are good for children at school. In the time during which children are required to attend Board-schools, I suspect that all that can be profitably attempted is to give to children the necessary instruments for acquiring knowledge for themselves, and to impart a taste for acquiring it. And for this purpose it seems to me that it would be better to place more reliance upon the necessary elementary subjects than to burden them with additional subjects. If it is desired to carry the children beyond the mere requirements of the standards (and unquestionably this should be arrived at), then let a higher standard, especially of reading, be required. Let the children be taught to read with more and more intelligence, and let their reading extend over a wider range. And, above all, let the reading be suited to children, such as they can really understand, and be interested in. Don't let us make it our chief aim to have the reading instructive. It is all very well to have geographical and historical readers. These may be made interesting enough even to children, and, if so, let them be read. But let them be read because they are interesting. Don't make the children study such readers, and afterwards examine them in geography and history. And if they may read about Wallace and the Black Prince, about Negroes and Indians, why should they not also read Robinson Crusoe and the Vicar of Wakefield?

But if anything is to be taught in our Board Schools beyond the three essentials, a good case has been made out for a totally different kind of teaching from that furnished in the extra "class-subjects," and it is a good case both on the score of health and with reference to the destiny in life of most of the children brought up in Board Schools. The kind of teaching I refer to is training to industrial pursuits. On this subject I may quote the opinion of Mr. Matthew Arnold, who cannot be suspected of any tendency to say anything of book learning. "It is impossible," he says, "to see an institution like the district school at Norwood, which I had lately the privilege of visiting with Mr. Chadwick, without feeling that the case of the advocates for short time schooling, balanced by an equal or nearly equal time of industrial training and of well-planned bodily exercise, deserves at any rate serious attention. . . . . Short time schooling, organised as in large towns, it is easy to organise it, and balanced by industrial training and bodily exercise, is actually more effective, as its advocates maintain, than our present long-time schooling, besides its evident advantages in giving health and hardiness, and besides its great saving of expense."

So Froude, while admitting that all are agreed as to the necessity of teaching the three R's goes on to say, in his address at St. Andrews on Education (1869):—"I doubt very much indeed whether the honesty of the country has been improved by the substitution so generally of mental education for industrial; and the three R's, if no industrial training has gone along with them, are apt, as Miss Nightingale observes, to produce a fourth R of rascaldom."

The Dwarf Trees of China.—The dwarf trees of China are curiosities of forestry. Every child knows how the Chinese cramp their women's feet by bandaging them when they are infants, and thus render it impossible for them to walk. It is, however, wonderful to see miniature oaks, chestnuts, pines, and cedars, growing in flower-pots, fifty years old and yet not a foot high. To do this, take a young plant, cut off its tap root, and place it in a basin in which there is good soil kept well watered. If it grows too rapidly, dig down and shorten in several roots. Every year the leaves grow smaller, and the little dwarf trees make interesting pets, just as some people raise canary birds, and others squirrels.—*Cultivator.*

IMPORTANT NOTICE.

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Personal Health

"Be timely wise;
With health all taste of pleasure flies."—*Gay.*

IMPROVING THE VOICE.

Mr. Mattieu Williams says in his "Science Notes" (*Gentleman's Magazine* for April), a considerable quantity of ink has been lately expended on Dr. Moffatt's invention of "Italian air" for the improvement of the voice. According to Dr. Moffatt's theory, peroxide of hydrogen is a prominent constituent of the air of Italy, and Italy is "the home of song" because the Italians have superlatively fine voices.

Mr. White, of Plymouth, writing to the *Lancet*, says that English pupils studying in Italy do not experience the remarkable effects claimed for Italian air, nor do Italian vocalists in England lose their vocal superiority. Dr. Andrew Wilson, quoting Mr. White in his valuable magazine, Health, (Feb. 22), says, "This looks like sensible criticism, and suggests that, after all, race-peculiarity, and not peroxide of hydrogen, lies at the root of Italian purity of song."

I am still more sceptical than Dr. Wilson, as I question the existence of any *natural* superiority of the Italian voice, as compared with the English; and, even worse still, claim for the crude English voice, especially the female voice, a decided superiority to that of the Italian. I believe that most of the Italian *maestri* who have had many pupils of both nations, and other opportunities of comparison, agree with me. I am told that Sir Michael Costa has often expressed his admiration of the natural powers of the British voice as exhibited to him when conducting the great choirs of our Provincial and Metropolitan Musical Festivals. The Bradford choir, and generally speaking those of the North, were specially mentioned by him.

I have heard the same expression of opinion in Italy, and have there witnessed some remarkable receptions of English *prima donnas.* They were not paid as much in cash as in London, simply because the scale of remuneration there is far lower, but the homage was almost ridiculous. Clara Novello, for instance (an Englishwoman, though she bore an Italian name), was called before the curtain fourteen times on the occasion of her benefit at *The Tordinona* when I was in Rome, and on leaving the theatre, the horses were taken from the carriage and replaced by a troop of young men, who dragged her with torchlight accompaniments along the Corso and other main streets of the city.

The true source of the unquestionable pre-eminence of *trained* Italian vocalists is in the training, and the social status accorded to operatic artists. The musical profession there holds a similar rank to the legal profession here. The stage is level with the bar and the bench. Well-to-do people, and even members of the aristocracy, deliberately select the lyric theatrical profession for their children, male and female, and educate them accordingly with the aid of the State musical universities, the *conservatorj*, where not only vocal and instrumental music are taught, but all kinds of stage business, such as elocution, pantomime, fencing, dancing, &c. Years of steady daily drudgery are devoted to such preparation, with corresponding results.

Persiani, as a pure soprano, was the *prima donna* of Europe between forty and fifty years ago, not because nature had endowed her with the finest natural organ, but because her father was a great teacher and trained his daughter accordingly. English artistes are usually very lazy, and depend upon the natural excellence of their voices rather than upon the daily drill, which really has the effect attributed by Dr. Moffatt to peroxide of hydrogen.

If any of my readers have attended Dr. Moffatt's lectures, they will probably reply to the above by saying that they witnessed the actual transformation of the lecturer's voice from a deep bass to a shrill tenor, consequent upon his breathing the preparation of hydrogen.

The experiment is a very old one. It dates from the establishment of "The Pneumatic Institution" by Dr. Beddowes, to whom, and the subscribers to the institution, Humphrey Davy, then a young aspirant to scientific fame, dedicated a volume of essays. The main object of this institution was to cure diseases by the breathing of gases.

Among other gases which were inhaled (often with serious inconvenience and danger) by the hopeful "pneumatists" was hydrogen. The effect of this upon the voice was one of their early observations. They found on inhaling it that the pitch of their voices changed most singularly, the deepest bass to pure soprano.

When but a small boy I witnessed this experiment made by Mr. Hemming in the theatre of the London Mechanics' Institution, and have frequently repeated it myself for the instruction and amusement of my pupils in Edinburgh and Birmingham. I never found an audience that could resist it. Roars of laughter always follow the absurd change, which only lasts while the hydrogen remains in the lungs. Immediately it is expelled the voice returns to its original pitch.

I must not conclude this note without warning my readers who may be disposed to repeat this experiment, to make it at a considerable distance from any kind of light, as it is quite possible to mix with the hydrogen in the lungs a sufficient quantity of air to make it explosive, and an explosion within the air cells of the lungs would probably put an end to all further research by its victim. I have always kept at a respectful distance from any light, for at least five minutes after charging my lungs with the hydrogen, lest a small quantity should remain there.

Why Eyes Shine.—Place a child (because the pupils of children are large), and by preference a blonde, at a distance of ten or fifteen feet from a lamp which is the only source of light in a room, and cause it to look at some object in the direction of the lamp, turning the eye you wish to look at slightly inward toward the nose. Now, put your own eye close behind the lamp-flame, with a card between it and the flame. If you will then look close by the edge of the flame covered by the card into the eye of the child, you will see, instead of a perfectly black pupil, a reddish-yellow circle. If the eye happens to be hypermetropic, you will be able to see the red reflex when your own eye is at some distance to one side of the flame. This is the true explanation of the luminous appearance of the eyes of some animals when they are in comparative obscurity. It is simply the light reflected from the bottom of their eyes, which is generally of a reddish tinge on account of the red blood in the vascular layer of the choroid back of the semi-transparent retina, and not light that is generated there at all. This reflection is most apparent when the animal is in obscurity, but the observer must be in the light, and somewhat in the relative position indicated in the above-described experiment—that is, the eye of the observer must be on the same line with the light and the observed eye. The eyes of nearly all animals are hypermetropic, most of them very highly so, so that they send out the rays of light which have entered them in a very diverging manner.—*Popular Science Monthly.*

Our Papers on Popular Science.

SIXTH PAPER.

"Blessings on Science! When the Earth seemed old,
When Faith grew doting, and our reason cold,
'Twas she discovered that the world was young,
And taught a language to its lisping tongue."
—*Charles Mackay.*

HEAT.—I.

By Edward H. Riches, LL.D., F.R.A.S.

The nervous system distributed over the surface of our bodies, although enabling us to experience the sensation of warmth, is not capable of distinguishing exactly the various degrees of heat; when heat is entering or leaving our bodies, we experience the fact that we are feeling warmer or colder, but that is all. With the eye, we know that it is possible for us to distinguish gradations of light, and with the ear the various degrees of sound are perceived, but gradations of heat we are not able to discern properly, and we thus see how necessary it is that we should have at our command certain artificial means for supplying us with what it is so necessary for us to know. But it is curious to observe the fact how little power we possess for distinguishing up to a point the various gradations of heat and cold, this power is very limited; for example, if we touch a lump of frozen mercury and a hot iron rod, the sensations we immediately experience in both cases are similar. The phenomena of heat have been ascribed by some to a species of motion among the minute particles of bodies generally, just as *sound* is motion of another kind among the same particles, as we showed in a previous paper. Some, again, have supposed that the presence of a peculiar fluid or ethereal kind of matter which has been looked upon as the source of light, is also that from which heat arises; but from the fact that nowhere in nature do we find heat alone in a separate state (nor has art succeeded in producing it thus), we may certainly conclude that heat has no separate material existence as a fluid. Upon consideration, though, it need not be a matter of great surprise that heat should have been considered at one time to be a material body, entering into combination with solids, fluids, or gases, for the reason that it can be so readily evoked from ponderable substances. For instance, if a little sulphur, say, be used as the immediate combustible body, a workman might create enough heat to light the fire of his forge, by a continued amount of hammering a piece of iron on his anvil. In fact, *mechanical action* may be regarded as *one* of the many *sources of heat* which exist; and we may here mention that the other sources of heat recognised to exist are the sun, the interior of the earth, electricity, vital action, and chemical action. There is no perceptible weight in heat, and this may be readily seen by taking a delicate scale, when the equilibrium will not be disturbed if ice be allowed to melt, or red-hot iron be allowed to cool.

The facts, too, that heat can be produced by friction to any extent, and intense heat can be created by exploding a quantity of gunpowder, afford us further proofs that heat must never be supposed to have *a separate existence.* Heat possesses an important property which at once distinguishes it from all other agents in nature, and this property is seen in the fact that heat passes through and exists at all times in every kind of matter; in fact, heat exists *everywhere*, and every known body in nature contains it. As an example that heat exists even in *ice*, it is known that in a room with a temperature below freezing-point, heat may be extracted from two pieces of ice by friction—by rubbing them together—and thus melting them. Bodies assume a different bulk or appearance according as heat is added to or subtracted from them, and it is by this *change* that the quantity of heat which may exist in a body can be measured.

We know that heat travels with light from the sun, and as the sun was said by Newton to be a material body, it seemed only natural that the contemporaries of Newton, who had been convinced by him of this theory, should conclude that heat was a subtle, rare form of matter opposed to cohesion. But now, the more rational theory of "undulation" as regards heat has taken the place of the hypothesis of "emission"—the material theory of heat. And it must be borne in mind that heat is a *force*, a *power*—as will be more readily seen later on in our other papers on this subject—for if all space be pervaded with an imponderable elastic ether, a certain vibratory motion set up amongst the material particles of a body is capable of communicating an effect upon this ether; and so, upon the same principle that a glass trembles whilst producing sound in air, so the particles or molecules of gases oscillate, these oscillations or vibrations are communicated to, and transmitted by, the ether.

The connection between heat and power has been shown by several leading scientists, and a great number of experiments and practical demonstrations have been forthcoming, which have been the means of presenting a variety of new phases to the science of heat, which at one time seemed to have reached its limits in the continued repetition of descriptions of thermometers, pyrometers, calorimeters, and endless disquisitions on latent caloric and specific heat. But that heat is in every sense a *power* now goes without saying; and there is one forcible experiment which we may here mention—one of Tyndall's. If a brass tube containing water be connected with a whirling table, and if whilst it is revolving rapidly it be rubbed with the wood of a lemon-squeezer, the friction will very soon generate enough heat to cause water to boil, and if the tube be closed with a cork there will be found to be sufficient force to eject the cork. It may be taken, then, as a fact that just as power generates heat, so heat produces force. It was before observed that heat exists in every body in nature, so that *cold* is, after all, but a relative term expressing the absence of heat to a certain degree.

Heat diffuses itself according to a certain law among neighbouring bodies until each body is of equal temperature, as far as can be tested by the thermometer; and it is on account of this law that heat passes from one body to another of lower temperature, so that when our hands touch a body of higher temperature we call it heat—that is, this higher temperature conveyed to our hands produces a sensation which we term warmth. In a similar way we form an idea of the sensation of cold; thus, in our ordinary experience, the sensations of heat and cold are merely degrees of temperature, contrasted by name as compared with the temperature of an individual experiencing those sensations. We may, perhaps, just mention that the mathematical theory of the distribution of heat is founded on the principle that, when a body has arrived at a permanent state of temperature, the quantity of heat then given out by any particle to the colder region adjacent is equal to that received from the warmer particles near it, and conversely. And, by way of example, suppose a solid body to be contained by two parallel planes of indefinite extent, and of uniform but different temperatures, we

The "Spécialité" Lime Juice, for family daily use throughout the year, has not the usual musty flavour; will not turn mouldy; may be obtained of Chemists and Grocers.—Feltoe & Sons, Albemarle-street, London, W.—[Advt.]

shall find that in this case the exterior conductibility through the sides being prevented, the temperature will be uniform in any section of the body parallel to its bases, but will increase from the lower plane in an arithmetical progression to the upper. Then, let us suppose that a thin cylindrical rod be placed in a medium of which the temperature is constantly zero, while its extremities are maintained at constant but different temperatures, we shall find that, by reason of the exterior conductibility, the distribution of heat will follow, at equal distances along the rod, a geometrical progression increasing from the colder extremity to the hotter.

We may remember, too, that heat radiates from all bodies in straight lines and in all directions, and in the law of its emanation it resembles light, its intensity diminishing in the same proportion as the sine of the angle of emanation. But we must confine ourselves rather to the many interesting and useful facts in connection with the science of heat, which the non-scientific mind may with advantage consider, and we shall endeavour in our next and subsequent papers on this subject to embrace as many as possible in a limited space, passing on to the particular sources of heat, avoiding, too, as far as possible, the introduction of what may not in some way or other admit of a practical bearing on our daily life.

Venetian Red has been found by British analysts to be used in the manufacture of certain German sausages as a means for improving their colour. The defendant in a suit for infringement of the Food and Drug Act stated that every 40 lb. of his sausages contained 32 lb. of lean legs of pork, 2 lb. of back-fat, 4 lb. of flour, 6 oz. of white pepper, 2 oz. of nutmeg, 2 oz. of saltpetre, 12 oz. of salt, 2 oz. of Venetian red, and a little Cayenne pepper.

Lime-juice and Glycerine.—Preparations of this class are generally of three kinds, viz., (*A*) simple mixtures of lime-water and an oil, (*B*) inseparable emulsions containing a more powerful alkali, and (*C*) true mixtures of lime juice, glycerine, and an oil (such as Rimmel's). All have the same end in view; that is, to restore and beautify the hair. Class *A* cannot be made inseparable, but, in the proportion of three parts of almond or sesame oil to five parts of fresh lime-water, the latter being added very gradually and with constant shaking, a very good preparation is obtained, and such as may be used for common purposes. The inseparable kind is quite as good as a hair-dressing as any other, and has the further recommendation of pleasing the public. To make this, put one pint (20 oz.) of almond oil in a Winchester quart bottle and add 4 oz. of water containing 80 grains of borax. Shake well and add 3 drms. liquor potassæ and q. s. lemon and bergamot to perfume, and shake occasionally during three hours. Class *C*. For this variety Mr. F. Barret (in *Phar. Jour. and Trans.*), gives the following formula for "elegant" preparation: white wax, ½ dr.; almond oil, 8 dr. Dissolve the wax in the oil by heat and add gradually, glycerine, 1 dr.; lime juice, 1 dr.; rectified spirit, ½ dr.; water, 2 dr.; ess. lemon, 2 oz.; ess. oil of almonds, 5 gtt. To these formulæ we may add that of a preparation of a different nature, but strictly a lime-juice and glycerine. It has the disadvantage of being a little thin, and separates into two layers on standing, readily combining, however, on agitation. It forms an admirable hair-dressing for hard and soft hair: tincture of senega, ½ dr.; almond oil, 1 oz. Shake well, and add the following mixture gradually: glycerine, 2 dr.; lime-juice, 1 oz.; rose water, 2 oz., perfume with essence of lemon, 10 drops; essence of bergamot, 5 drops.—*Chem. and Drug. Diary.*

The Family Circle

"The child is father of the man."—*Wordsworth.*
"In bringing up a child, think of its old age."—*Joubert.*

ECONOMICAL BREAKFASTS, DINNERS, AND SUPPERS.

By Mrs. Thwaites, of Liverpool.

SIXTH PAPER.

Breakfast.—Bacon is an almost universal favourite for breakfast, and in cold weather is a most useful food; if, however, it is continued too long without change, people weary of it. The best mode of cooking bacon is to toast or broil it; when fried it is liable to burn, and the fat, from actual contact with the hot iron of the pan, becomes unwholesome. For toasting bacon a Dutch oven is generally used, which should be kept always perfectly bright and clean, that the heat may be reflected from its surface. Do not put the bacon close to the fire at first, but let it gradually warm on both sides; then set it nearer the fire. When quite done through, serve on a hot dish. The fat which runs from the bacon during cooking should be quite clear; it forms an excellent substitute for butter for children. There are many capital arrangements now in gas-stoves for broiling; the bacon being placed under the burner and a kettle over, so that a considerable saving of time and trouble is effected. Eggs are frequently fried and served with bacon. A nicely-fried egg will tempt most people to eat. Break the egg into a cup, and have the bottom of the frying-pan well covered with fat; when smoking hot, hold the pan to one side and put the egg gently in; the fat should for the first minute nearly cover the egg, which should bubble up all round the edges; put the pan straight, and let the egg cook about two minutes; never turn it; it should be lightly browned underneath; lift carefully up with a fish-slice. Ham is preferred by some people, but is, as a rule, less digestible than bacon; when unpleasantly salt, hot water to cover the slices should be poured over and left to stand for about half-an-hour; then fry or broil very slowly.

Fried Potatoes.—Half-boil a pound of potatoes at night: strain away the water. In the morning cut them in rather thick slices; put about 2 oz. of dripping into a frying-pan, let it get smoking hot, and put in the potatoes, turning them as they brown. When done they should be brown on both sides; crisp and dry. Sprinkle lightly with salt and pepper. Cold potatoes from the previous day's dinner may be used; but as they are soft they should be mashed, seasoned with salt and pepper, and just enough dripping to cover the pan must be used. The mashed potato must be put in, smoothed over, and allowed to brown slowly; when quite brown on the first side turn over and brown the other.

Fish and Potato Cakes.—Equal quantities of cold fish and mashed potato. Salt or fresh fish may be used; it must be carefully picked from skin and bone, and lightly chopped. Add seasoning of salt and pepper to taste, and beat all well together with a raw egg. If the potatoes are dry ½ oz. of dissolved butter may be added. Make the mixture up into little cakes or rolls with the hands, handling as lightly as possible, and using a little flour on

Money Saved.—Adopt Chappuis' Daylight Reflectors, to supersede gas or lamp light during the day. They are universally used, from gentlemen's houses to workmen's shops or dwelling-places. (H.) Chappuis, patentee, 69, Fleet-street, London.—[Advt.]

the outside to prevent sticking; brush them lightly over with raw egg, and then roll in stale bread-crumbs; fry in smoking hot fat to a golden brown. When egg and bread-crumbs are objected to on the score of expense, flour the cakes well, but they will be more liable to break in the frying.

Dinner.—*Beefsteak Pie.*—1½ lb. to 2 lb. of second quality steak, cut into oblong pieces two or three inches long; split these pieces so that they may be ¼ in. or ⅓ in. thick; beat each piece well with a steak-beater. Mix together on a plate a tablespoonful of flour, a teaspoonful and a half of salt, a third of a teaspoonful of pepper; rub each each piece of meat well in this mixture, roll it up, and set on end in a deep pie-dish; fill the dish nearly to the top with cold water, and then make a light crust as follows:—Put the flour into a bowl, and add to it a small teaspoonful of baking powder, and half a one of salt; then rub in lightly with the fingers 3 oz. of lard or dripping; take care not to make the fat oily by too much handling; add as much cold water as will make the flour to a paste, knead it lightly, and turn out on a floured board, roll out to ½ in. thick, wet the rim of the pie-dish with cold water, and cover it with narrow strips of paste; then cover the dish over with the rest of the paste, cut the edges, make a hole in the centre, and lightly wet it over with milk; set at once into a hot oven; when the crust has risen well, reduce the heat: this should be in about twenty minutes, and allow one hour to an hour and a quarter to bake. When the pie is cut, the gravy will be found to be so thick and rich that a cupful of boiling water may be put in. As the meat in a pie of this kind is really stewed, it is an economical and nutritious dish, always provided the crust is light and not too rich.

Swiss Apple Pudding.—Mix 4 oz. of stale bread crumbs with 2 oz. of moist sugar; well butter a pie-dish and put in half the crumbs. Peel and core 1½ lb. of apples, stew them with a ¼ pt. of cold water in a closely-covered pan until quite soft; sweeten well with moist sugar, and flavour with a pinch of nutmeg grated, or a little lemon-rind. Put the rest of the crumbs over the apple, then dissolve ½ oz. of butter and pour over the top; set into a hot oven until lightly browned. This is a particularly good pudding for children and those people who find it impossible to eat pastry. Any kind of fruit in season may be substituted for the apples.

Red Currant Salad.—A Summer Sweet.—Strip 1 lb. of fresh currants from the stalks; mix from 4 to 6 oz. of finely-powdered white sugar lightly with them, and squeeze the juice of half a lemon over. Set in a cool place for about an hour and serve.

Supper. — *Australian Meat Salad.* — Nothing has, perhaps, ever had such a share of unmerited reproach as Australian tinned meat. It is true that occasionally a tin is found to be in bad condition; and there have been brands not always to be depended upon—but these have been the exceptions, not the rule; and there certainly must be in almost every household occasions when a tin of meat that can be opened and quickly turned to account, will prove a real boon. Being well cooked, it is good to use as a salad. Wash well and thoroughly dry a good lettuce, hold all the leaves close and with a sharp knife cut them across in shreds; other salad vegetables—as mustard and cress, onions, watercress, beetroot, &c.—may be used, but shred lettuce must form the foundation. Pile this in a heap in the centre of the dish, take half or more of a 2 lb. tin of either beef or mutton, scrape off the gravy or jelly, and put it aside, it will be useful to put into a stew or gravy another day. Cut the meat up, sprinkle it very lightly with salt and pepper, and put it round the shred lettuce. Make the following salad dressing. The yolks of two hard-boiled eggs, put into a mortar, with a good pinch of salt and pepper and a small pinch of Cayenne, pound well, and add drop by drop a tablespoonful and a half of salad oil, continue to pound until quite smooth, add one to two tablespoonfuls of vinegar, mix, and pour over the salad just as it goes to table. If a mortar be not forthcoming, the ingredients must be well rubbed in a bowl with a wooden spoon.

Dr. Nichols' Penny Vegetarian Cookery-Book.—Every household should possess this marvel of cheapness. Free for 1½d.—Nichols & Co., 23, Oxford-street, London, W.—[Advt.]

Scott's Midlothian Oat-Flour.—There is no preparation which can be assimilated with greater facility than such a flour as this. Those who suffer from indigestion might substitute for their ordinary breakfast materials this flour, prepared according to the recipe given by Messrs. Scott and printed on the tins.—Ed. Health.—[Advt.]

The "Boncontour" Stay-Belt and other Orthopædic Apparatus, made by K. R. Schramm, Orthopædic Mechanician, 64, Belmont-street, Chalk Farm-road, London, N.W.—[Advt.]

THE USE OF SODA IN THE BOILING OF GREEN VEGETABLES.

With regard to the present scare about the use of common washing soda in the cooking of green vegetables, it should be clearly understood that soda in any shape whatever is prejudicial to health, and ought only to be resorted to in extreme cases, as when the water is excessively hard, from the presence of sulphate of lime or magnesia, or when the vegetable (cabbage or cauliflower especially) is tough from age. If the following rules were observed, it would be better for the health of many people. The water in which any green vegetable is to be boiled, must have a teaspoonful of salt and one of sugar added to each quart, and must be *quite* boiling when the vegetables are put in. The addition of salt causes the water to boil at a slightly higher temperature, while the sugar improves the colour in the same way that soda does, but without producing the same unnatural brightness. The cover of the pan must never be closed, nor must the water stop boiling for one instant until the vegetables are quite soft, when they must be strained immediately.

To any one capable of appreciating green vegetables properly cooked, the use of soda is most objectionable. Its presence can be at once detected by the peculiar squashy softness and the absence of flavour. Indeed, it is neither more nor less than a cloak for careless cooking. To the excessive use of soda in this way may be traced the slight diarrhœa many people suffer from, and which is nearly always ascribed to the vegetables themselves.

A word or two about the difference between washing soda and what is commonly called carbonate of soda. The former is really the carbonate, the latter is bi-carbonate. Washing soda frequently contains injurious impurities, and is strongly alkaline and slightly caustic, while the bi-carbonate is less alkaline and not at all caustic when pure.

Oil of Wintergreen mixed with an equal quantity of olive-oil, when applied externally to inflamed joints affected by acute rheumatism, is maintained to be, on high therapeutic authority, a means of instant relief from pain. At any rate, its introduction to the sick-chamber is unobjectionable, if only for the agreeable odour it imparts to the atmosphere.

Our Bookshelf

"Reading maketh a full man."—*Bacon.*

A BOOK ON POISONS.

Poisons: Their Effects and Detection. By Alexander Wynter Blyth, M.R.C.S, F.C.S, &c., Public Analyst for the County of Devon, and Medical Officer of Health for St. Marylebone. (London: Charles Griffin & Co.)

Dr. Blyth's work is addressed, according to the title-page, to analytical chemists and experts, but we cannot help thinking that it will appeal to a much wider circle of readers than this. The subject of poisons is at all times a most interesting one, not only to the medical man and scientist, whom it concerns professionally, but to the world at large, whom it concerns socially. It was, therefore, with more than our customary anticipation of pleasure that we sat down to read Dr. Blyth's book, and this was further enhanced by the position the author occupies in the scientific world, and the high reputation he has already made for himself by his previous publications. Nor were we in the slightest degree disappointed. A more interesting book we have rarely met with, and its value as a scientific manual and work of reference can scarcely be exaggerated. Dr. Blyth has given a good hint to all authors—he has conceived a clear idea of what he intended to write about, *how* he intended to write about it, and the arrangement he meant to pursue. To this plan he has rigidly adhered throughout, working in all his details in a pleasant, agreeable style that has wonderfully increased the general interest of his work. He does not forget that he appeals, primarily, to scientific readers, and that, therefore, his language should, above everything, be clear and terse. In brief, we can cordially recommend the book to both medical men and students alike, and neither, we are sure, will regret the time spent over its perusal.

One of the most interesting portions of Dr. Blyth's book is the introductory chapter, in which he deals with the old poison lore. The history of the *poison lehre*, like all history, Dr. Blyth tells us, arises in the kingdom of mythology. Far away in the North, there was supposed to be a land governed by sorcerers, and many were the dark and weird-some stories told of it. After a time this imaginary land was more definitely fixed at Colchis, and Æetes, Perses, Hecate, Medea, and Circe, all members of the same family, were said to be the chief rulers. Of these the principal personage, so far as a knowledge of sorcery and poisonous herbs went, seems to have been Hecate, and she was also learned in remedies both good and evil. After her death, her power passed to her daughter Medea, who, it will be remembered by the readers of heathen mythology, was the lady who so kindly presented Crensa on her wedding-day with a bridal garment that burst into flames as soon as it was put on, burning its poor occupant to ashes. This, of course, speaks very highly in favour of Medea's power as a sorceress, and if she only knew as much about poisons, she must have been a very talented lady indeed.

Coming next to the Egyptians, they seem to have had a very considerable knowledge of the poisonous properties of many plants. Attalus Phylometer, for example, was acquainted with henbane, aconite or monks-hood, and other poisonous plants; and he spent much of his time in experimenting with these poisons (not, it is to be hoped, on other people) and in compounding medicines. The skill exhibited, too, by the Egyptians in embalming, shows that they must have been familiar, to a certain extent, with chemicals. That they knew prussic acid, as extracted in a dilute state from certain plants, notably the peach, is pretty evident, Dr. Blyth thinks, from the papyrus preserved at the Louvre, on which M. Duteil read, "Pronounce not the name of I.A.O., under the penalty of the peach," in which solemn warning is without doubt, conveyed the intimation that if they did pronounce this awe-striking name—or in other words reveal the religious mysteries of the priests—they would be put to death by waters distilled from the peach. The Romans, too, would seem to have been acquainted with this deadly drink, for in the reign of Tiberius it is related how a Roman knight, accused of high treason, swallowed a poison and immediately fell dead at the feet of the senators; and if this were not prussic acid, it certainly looks very much like it—and in a tolerably concentrated form, too, as Dr. Blyth points out.

The Greeks entertained strange ideas about poison. They considered that, under some circumstances, it was a very justifiable thing to take—nay, more, that it was extremely meritorious and noble, a sign, so to speak, of high spirit; and consequently, under certain conditions, they formally sanctioned its use. Thus there was a woman of superior station in the Island of Cos, according to Valerius Maximus, who, having lived happily for ninety years, and being afraid that if she dwelt longer in this life there would be a cessation of her good fortune, obtained leave to take a poisonous draught; and, we presume, did so, as nothing further is said on the matter. The Greeks, too, used poison as a means of capital punishment, and this, no doubt, encouraged suicide by the same method, for it is but natural to suppose that any one desirous of quitting this world would prefer to do so in the easy, painless manner of the State prisoner than by the cruel torture of the sword or dagger. Still, for all the good they derived from this use or abuse of a few violent poisons, the Romans and Greeks might just as well have left them alone (indeed—for our pen has betrayed us into an error—it would have been better if in this matter of suicide they *had* left them alone altogether), their knowledge of these drugs, in regard to their effects and method of detection, being very rudimentary and incomplete, and making no progress whatever.

In the East the art of poisoning soon sprang into existence, more especially in India, and it was freely used for the purpose of suicide, robbery, or revenge. The ancient practice of the Hindoo widow, Dr. Blyth tells us—namely, self-immolation on the burning pile of her husband—is ascribed to the necessity which the Brahmins were under of putting a stop to the crime of domestic poisoning. Every little conjugal quarrel was liable to be settled in this way. However, such a law, as might be supposed, soon put an end to the practice, and the wife tended her husband as if he had been her own life. The drugs used by the Asiatic poisoners were arsenic, aconite, opium, and various plants belonging to the order Solanaceæ, and they are also supposed to have been more than ordinarily well acquainted with the infectious qualities of certain fevers and malignant diseases, and to have been greatly influenced by this fact in the preparation of their commodities.

Very early in the Christian era, a set of professional poisoners arose. Matters now were about at their height, and all political personages seem to have gone about in fear of their lives. So extreme were their apprehensions, that they actually suspected their own relatives, and it is on record that when Tiberius offered to his daughter-in-law, Agrippina, some apples at table one day, she refused to eat of them. She it was who, supplied with the suitable "material" by the infamous Locusta, poisoned Claudius; and the same ingredient, it is said, was administered to

Britannicus by order of his brother Nero. The details of the latter case are given with such minuteness, and are, moreover, so interesting, that we make no apology for giving them almost in full. They exhibit more clearly than any words of ours could do the character of the age :—

"It was the custom of the Romans to drink hot water . . . . from fashion or habit considered by them a luxury; and as no two men's tastes are alike, great skill was shown by the slaves in bringing the water exactly to that degree of heat which their respective masters found agreeable.

"The children of the Imperial house . . . . . sat at the banquets at a smaller side-table, while their parents reclined at the larger. A slave brings hot water to Britannicus. It is too hot; Britannicus refuses it. The slave adds cold water, and it is this cold water that is supposed to have been poisoned. In any case, Britannicus had no sooner drunk of it than he lost voice and respiration. Agrippina, his mother, was struck with terror, as well as Octavia, his sister. Nero, the author of the crime, looks coldly on, saying that such fits often happened to him in infancy without evil result; and after a few moments' silence the banquet goes on as before."

If this, as Dr. Blyth remarks, were not sudden death from heart or brain disease, the poison must either have been a cyanide or prussic acid.

In those days no examination of the dead body was possible. The great Greek and Roman writers, despite the fact that the Alexandrian school, some three hundred years before Christ, had dissected both the living and the dead, knew only the mere rudiments of human anatomy, and were ignorant of all pathology whatever. For want of this knowledge, the ancients therefore attached great importance to the outward appearances; if the body was much discoloured, the face livid, tongue protruding, and hands convulsively clenched, it was clear evidence in their eyes that the man had been poisoned; he should have died calmly and peacefully—slowly too—had it been natural. The preservation of the body after death was also an important point, and if by chance it should rapidly decompose, then nothing could be more certain than that poison had been administered. Of course, we know now that this is all wrong, and that the corpse of anyone dying from the effects of poison is, if anything, less liable to decompose rapidly than if its tissues were wasted while in the life by disease.

In the polite art of making away with people, the Venetian criminal school, which flourished principally in the fifteenth century, was one of the most famous. Here not only were individuals morally corrupted, but the State as well—the Government formally recognising the desirability of removing certain high and mighty personages by poison, and calmly debating among themselves how it was to be done. Then there was the Council of Ten—that mysterious body whose shameless records are still in existence to testify against them. In the year 1513, a Franciscan monk, John of Ragubo, offered to the latter a selection of poisons, professing himself willing to remove any objectionable person out of their way; and they considered his application, and on a division (10 against 5) agreed to accept his patriotic proposal! Of course, John of Ragubo was to have something for his pains, and a regular tariff was fixed by him: 500 ducats for the great Sultan, 150 ducats for the King of Spain, 100 for the Pope, travelling expenses in each case being extra.

We have lingered so long by the side of this old poison lore, and have found it so interesting, that our space has gone almost before we are aware of it. We had intended to have alluded to the more practical portions of Dr. Blyth's book, pointing out how thorough they are, but enough has been said to show its interesting character. Perhaps on some future occasion we may again allude to the work, but at present we can only repeat our former advice, that the reader should get the book and peruse it for himself.

"Early to bed and early to rise will all be in vain if you don't advertise."—*Conf. Jour.*

Smokers' Idiosyncrasies.—Inveterate smokers do funny things. Carlyle smoked up the chimney, with a degree of thoughtfulness for the feelings of others not universal in his conduct; and the famous Bishop Burnet, who, like many another author, found composition facilitated by puffings of the seductive weed, disliking the interruption of removing his pipe constantly while he was writing, in order to combine the two operations with due comfort to himself, bored a hole through the broad brim of his hat, and, putting his long pipe through it, puffed and wrote and wrote and puffed with the most philosophical calm.

Alcohol from Chestnuts.—The *Moniteur du Produits Chemiques* informs us that alcohol can be extracted from chestnuts, and that 100 litres of the latter will yield 8 litres of very good spirit. The chestnuts are first dried, to develop the saccharine matter. They may be kept for a considerable time in the dry state. They are next decorticated, afterwards treated by water, and warmed until the sugar has been extracted. The solution thus obtained is called *tanade*. The chestnuts are then crushed, and, with the *tanade*, submitted to fermentation, after which the alcohol is obtained by distillation; the residue is stated to furnish a useful food for fattening cattle.

Animated Frozen Fish.—The *American Angler* vouches for the following fish story: A fish dealer in Salineville, Ohio, received a box of frozen fish from Cleveland, during one of the recent blizzards. They were so hard and brittle that they had to be handled with great care to keep them from breaking to pieces. He sold one to an old lady, who took it home and put it in a bucket of cold water to thaw out gradually. During the night she heard something splashing around in the kitchen. Supposing it was the cat trying to get the fish, she jumped out of bed, seized the broom, and rushed to the scene. She found the fish flopping in the pan. As near as could be learned this fish had lain out in the cold two nights before being packed, and had been out of the water for more than two weeks.

Preserved Meat.—Drs. Ungar and Bodländer, of Bonn, have recently been engaged in making an inquiry as to whether the contents of preserved meat-tins contain any appreciable quantity of the metal of which the tins are composed, and the conclusion they have arrived at is that a not inconsiderable quantity of tin passes over into the conserve. They could not decide upon the precise form in which the tin was present, but they ascertained the fact that it was not in a soluble form, or, at any rate, in a combination not readily soluble. Experiments on dogs and rabbits showed that the tin was absorbed by the intestinal mucous membrane, and it was detected in the urine, heart, liver, kidneys, spleen, brain, and muscles. They explain the fact of so little being heard of tin-poisoning in human beings by the comparatively recent introduction of tinned meats as an article of food, by their high price, leading to a minimum consumption, and finally to the presence of other metals, especially lead, used in soldering, to which symptoms of poisoning, when such do occur, are generally attributed. It is important that our knowledge on this point should be accurate and beyond doubt, as tinned meats are much used amongst us, and if the danger is real, the best safety will lie in facing it.—*Medical Press.*

WEIGHT OF CHILDREN.

The rate of growth for young children varies greatly at different periods of infancy, and follows laws of its own. In the first two years after birth a child should gain 20 lb. in weight, and 10 in. in height. The chief increase in growth and weight is in the first year, 13 lb. or 14 lb. of the gain in weight being in the first year, and 7 lb. or 8 lb. in the second. The third year, also, is one of active growth, the first dentition is completed, and the child often gains 5 in. in height, with 5 lb. to 6 lb. in weight. From three to ten years of age, a more uniform increase proceeds, at the rate of about 5 lb. a year in weight, and 3 in. in height. Unsuitable food, defective teeth, bad hygiene, and the various infantile ailments at any time check nutrition, so that the weight of 65 lb. and the height of 54 in., or 4ft. 6 in., is not always attained at ten years of age. Up to this time, sex makes very little difference; girls grow as fast as boys, and often increase as much in weight. Some of the highest figures in both respects are among girls. At twelve and thirteen some girls are as tall as boys, and many weigh as much; but growth sooner ceases.

Table of Children's Heights and Weights.

Age.	Common Height.	Extreme Measurements.		Avge. Hght.	Avge. Wght.	Extreme Weight.		Common Weight.
	ft. in.	Highest.	Lowest.	in.	lb.	Highest.	Lowest.	Stones.
At birth.		22 in.	16 in.	20	7	11 lb.	5 lb.	About ½
1 year ...	2 4	32 ,,	23 ,,	28	21	25 ,,	20 ,,	,, 1½
2 ,, ...	2 8	36 ,,	28 ,,	32	28	30 ,,	26 ,,	,, 2
3 ,, ...	3 0	39 ,,	33 ,,	36	31	34 ,,	28 ,,	,, 2½
4 ,, ...	3 3	41 ,,	35 ,,	38	35	40 ,,	30 ,,	,, 2¾
5 ,, ...	3 5	45 ,,	37 ,,	41	40	43 ,,	37 ,,	,, 2¾
6 ,, ...	3 7	48 ,,	42 ,,	44	44	51 ,,	38 ,,	,, 3
7 ,, ...	3 9	51 ,,	43 ,,	46	48	56 ,,	40 ,,	,, 3½
8 ,, ...	3 11	52 ,,	44 ,,	48	52	62 ,,	42 ,,	,, 4
9 ,, ...	4 0	54 ,,	46 ,,	51	56	68 ,,	46 ,,	,, 4½
10 ,, ...	4 3	56 ,,	48 ,,	53	62	72 ,,	50 ,,	,, 4½
11 ,, ...	4 6	59 ,,	50 ,,	56	70	82 ,,	56 ,,	,, 5
12 ,, ...	4 9	64 ,,	51 ,,	59	80	93 ,,	60 ,,	,, 5½

International Health Exhibition.

LONDON, 1884.

EIGHTH PAPER.

MEMORANDA FOR THE GUIDANCE OF EXHIBITORS,

Drawn up by the Sub-Committees and approved by the Executive Council.

Construction and Fittings of the Dwelling-house.

The portion of Group 3, the Dwelling-house, with which this Committee deal is that comprised within Classes 20, 28, 29, 30, and 31. The official classification is on page 12.

It should be distinctly understood with regard to all the above classes that only such exhibits as have a distinct bearing upon health can be admitted. Specimens, therefore, illustrating building construction generally, the decoration of houses, or their furniture, cannot be admitted unless they are shown to have actual reference to the health of the inmates of the houses.

This Committee is co-operating with the Committee on Water Supply and Sanitation in superintending the erection of two model dwellings in the exhibition grounds, the one showing good and the other showing defective sanitary arrangements. Further particulars about these model dwellings will be found in the memorandum issued by the Sub-committee above referred to.

It is desired that exhibitors should show, as far as possible, their own manufactures only, and not those of other makers, and they should restrict their exhibits to typical examples of their appliances, not sending more than a single example of each article.

In Class 20 it is desired to show not only models and designs for sanitary houses, but also, so far as possible, specimens showing their construction. It is desirable that those exhibitors who are prepared to erect specimens of actual buildings should, as far as possible, co-operate with other exhibitors who may be desirous of showing fittings or furniture for such buildings. The Executive Council will endeavour to facilitate such arrangements, but it will be desirable that the exhibitors should agree between themselves as to the manner in which such collective exhibits may be arranged.

The classification in Class 28 sufficiently indicates the objects it is desirable to show.

Under Class 29 may be included, in order to draw attention to existing defects, specimens of insanitary decoration, such as arsenical wall-papers, hangings, &c., so that the public may be taught what to avoid. Special interest would attach to any evidence of equally good effects being obtained by the use of harmless materials, and in many cases it may be desirable to show, side by side for purposes of comparison, papers, fabrics, &c., treated with poisonous colouring matters, and also with colouring matters of a harmless character.

With regard to Class 30, it may be noticed that specimens of furniture would be readily received which can be shown to have any connection with health.

The original arrangement of Class 31 has been somewhat altered. Matters relating to the care of the sick and wounded in war, or of those injured by accident at any time, have been taken out of this class, and a special group has been formed to which they have been referred, namely, Group IIIa. Ambulance. The class has also been somewhat enlarged in another direction, so that it includes all appliances for personal cleanliness, public and private baths, &c. It is hoped that a full display of these may be forthcoming. The Executive Council have had under consideration the question of fitting up baths for actual use in the Exhibition, as was done in the Berlin Exhibition, but it has been decided that it would be sufficient to show baths completely fitted up, without putting them into action.

Our Letter : Box

"Conference [maketh] a ready man."—*Bacon.*

NOTICES TO CORRESPONDENTS.

All Communications for the Editorial Department (including specimens of Sanitary Appliances, &c.), to be addressed to "The Editor of Health," 74-76, *Great Queen-street, London, W.C. Those intended for the Publishing Office to be sent to* "The Publisher," *at the same address.*

Contributors are requested to send stamps for the return of the MSS. *in event of non-acceptance. Every care will be taken to ensure the safety of* MSS., *but the* Editor *and* Publishers *cannot hold themselves responsible for accidental loss.*

Correspondents are requested to write on one side of the paper only. The Editor *disclaims responsibility for the opinions expressed by Correspondents.*

LETTERS TO THE EDITOR.

THE BATTLE OF THE FILTERS.

Sir,—I am glad to find that you have opened your columns to discuss the question as to the best filtering medium—a subject the importance of which cannot, I think, be over-estimated. Towards the close of last year what may be termed "a battle of the filters" was waged in your contemporary, *Land and Water*. Among those who joined in the contest were the Spongy Iron Filter Company, the London Water Purifying Company, M. Maignen of the "Filtre Rapide," the Silicated Carbon Company, and your obedient servant. The war, which was somewhat protracted, resulted, I have little hesitation in saying, in favour of the Spongy Iron Domestic Filter Company. The evidence on this point was, as I then wrote, overwhelming, and I doubted whether such a galaxy of talent as the following:—Sir William Siemens, F.R.S., Sir E. J. Bramwell, F.R.S., Dr. Frankland, F.R.S., Professor Bischof, Dr. Voelcker, &c., could be marshalled in favour of any other substance.

Some of the correspondents reminded me very much of Goldsmith's parson, in the "Deserted Village,"—

> "In arguing, too, the parson owned his skill,
> For e'en though vanquished, he could argue still."

From the fact of my picking up the gauntlet and advocating spongy iron it was not surprising that sinister motives should have been imputed to me, as may be the case now; it may, therefore, be as well to re-assert that I have no pecuniary interest, directly or indirectly, in any filter whatsoever, and that in dealing with the subject "I spoke as my understanding instructed me, and as mine honesty put it to utterance." I am, &c.,

W. Domett Stone, M.D., F.R.C.S.

19, Oxford-terrace, Hyde-park, W.

Sir,—Asking leave to make a few observations on Mr. Maignen's letter in No. 52 of Health, we beg to enclose for your perusal a specimen of his advertisements, from which you will see the astounding fact that he actually "guarantees" his filters to remove *all* germs of disease from water. He is thus in the enviable position of being intimately acquainted with a variety of germs which no one has ever seen, and about which we do not know much more than that certain diseases, in consideration of the phenomena associated with them, are in all probability caused by some forms of organic life of the nature of Bacteria.

We are nevertheless unable to reconcile your correspondent's answer in the first instance, that there is a system of filtration which can be depended on for the *destruction* of disease germs in water, with the subsequent assertion that the vitality of bacteria is not destroyed "by any chemical agent." Mr. Lister might probably say something on the latter point, which appears an unmistakable contradiction of the former. We may, however, assume that Mr. Maignen means to deny the practicability of removing disease germs in filters by chemical agency. This, then, is an admission that his filters do not possess any such power; in fact, he informs us they effect the removal of germs by *mechanical* means, that is to say, by a kind of screen. He promises to "prove" this.

It is, perhaps, not immaterial if we remind you that upon the authority of the VI. Rep. on Rivers Pollution, p. 220, the animal charcoal your correspondent employs as filtering medium possesses the property, "in a high degree," of *favouring* the growth of the low forms of organic life. Any one desiring independent confirmation of this statement will find it in the Army Med. Rep. for 1877, pp. 170 and 171, in the Statistical Sanitary Report of the Prussian War Office on the Prussian Army (Berlin, 1880), p. 6, as the result of Dr. Koch's experiments, to which we referred in our last letter, and in numerous other publications. It seems pretty clear that a material which favours the development of the low forms of life, including, for all we know, disease germs, cannot well destroy them.

As regards the possibility of retaining germs by a kind of screen, as suggested by your correspondent, it appears that in No. 49 of Health you even overrated their size, for in the New Series, No. III., of the Rep. of the Med. Officer of the Privy Council and Local Government Board, p. 30, Professor Burdon Sanderson estimates the "spheroidal corpuscules" in lymph at about $\frac{1}{3300}$ inch. He tells us that they are indeed so minute that they can only be made out distinctly under an immersion lens of high power, if the illumination is favourable.

Such, and perhaps other still more minute bodies, your correspondent proposes to retain by a kind of fine screen, and this with such unfailing certainty that he can guarantee the result. Supposing even such a screen could be constructed, would it form a practicable domestic filter? Perhaps we may receive the answer to this question if we inquire what scientific men found necessary in their attempts to sterilise liquids by mechanical filtration. Foremost we have the experiments by Klebs in 1872-73, and a few years later those by Chomjakon. The latter forced the liquids under a pressure of from half to one and a half atmospheres, through cylinders of porous earthenware, when he found the filtrate free from septic poison and germ life generally. Now, pray, compare with this extremely slow filtration under a great pressure the rapid filtration under comparatively no pressure, of which a feature is made in the "Filtre Rapide." The difference surely can solely be explained by the pores being infinitely larger in the latter than those which we are told retained the germs in the earthenware cylinders, and it is therefore most unlikely that your correspondent can obtain in his filters anything like the result described by M. Chomjakon. He has disclaimed chemical action; where, then, is now the filter which he "guarantees" to destroy all germs of disease in water?

If we may, in concluding, appeal to practical experience, we beg to refer to the epidemic at Lausen, in 1872, as an instance showing conclusively that even the most perfect natural mechanical filtration, such as would be utterly impracticable in any artificial filter, is absolutely incompetent to retain the zymotic poison.

As far as we are concerned, we beg leave to say that we will not take notice of any further letter by Mr. Maignen unless he supplies the "proof" of his assertions, which he promised, but which we are unable to find.—We remain, Sir, your most obedient servants, The Spongy Iron Domestic Filter Company.

22, New Oxford-street, W.C., *April* 5, 1884.

Sir,—In your issues of March 14 and 28, in communications respecting bacteria, reference is made to experiments by the late Mr. F. Hatton, published in the journal of the Chemical Society in 1881.

The experiments in question had nothing to do with filtration. As the title of the communication states, the investigation was made to ascertain the action of various gases on the increase and life of bacteria.

In the former letter, March 14, and also the latter of the 28th, the experiment referred to is doubtless the one described on page 256 of the journal named, in which 20 grains of spongy iron were introduced into a small volume of liquid, standing over mercury, and containing a large quantity of bacteria. A small volume of air was also enclosed. The note at the end of the third day was:—"Bacteria alive, solution green." Fourth day, "No bacteria visible.

It was concluded that the bacteria were dead, from their torpid appearance and the liquid "clearing," on standing, very rapidly, which is not the case when they are active. The test of transplanting some of these "torpid" or "dead" bacteria to a fresh solution was not tried at the time. The liquid in which the spongy iron had been immersed for four days was a moderately strong solution of ferrous carbonate and bore, a film of red hydrated oxide of iron on exposure to air after a few minutes.

The conclusion that spongy iron acts more destructively than several of the strongest poisons and antiseptics is scarcely warranted from these published experiments of Mr. Hatton. The strong poisons used were strychnine, brucine, and one or two others which happen to be very insoluble in water, almost as insoluble as spongy iron, and not acted upon by it as finely divided iron is. Alcohol, phenols, permanganate, bichromate, and chlorate of potash act rapidly and destructively on bacterial life, they, being easily soluble, coming in closer contact. Salts of iron, especially ferrous salts, act similarly, especially in strong solutions, *probably* owing to the tendency of the iron salt to absorb oxygen from the air, or any substance containing it in the water, more energetically than the bacteria do.

The argument respecting proto-salts of iron is futile, and the conclusions respecting the formation and action of the same on bacteria in water are surely somewhat premature. Iron salts have been recently shown to be useful for cabbages, and, as yet, we have no data regarding what *amount* of iron in a water will kill the bacteria. Much "ferrous hydrate or carbonate" in a drinking water would scarcely improve it.

Since Mr. Hatton's death, about a year ago, I have repeated some of his experiments, and continued others he intended to work at on his return from Borneo.

Personally, I do not consider the filtration question by any means settled. Fine fibre paper arrests some kind of bacteria to a great extent—mechanically, of course; and a sponge of filter-paper fibre and asbestos seems to act still better. I hope to be able to publish shortly some results of filtration experiments on solutions containing bacteria.—I am yours, &c., W. R. Hodgkinson.

QUERIES AND ANSWERS.

[Important to Correspondents.—We have again to call attention to the fact that, while every effort is made week by week to deal with the enormous mass of correspondence which reaches us, we cannot undertake to answer queries save as space permits. All queries are attentively considered and replied to, but in no case can any query be answered in the same week as that in which it is received.]

[A number of replies have been crowded out of the present number owing to pressure in space. These replies will be duly given next week.]

[Letters addressed otherwise than to the *Editor* of Health, at 74, Great Queen-street, London, W.C., will not be attended to.]

[We beg to announce to our correspondents that, save in exceptional cases, or where addresses of medical men, &c., are desired, we cannot reply to inquiries by letter.]

[We must also request correspondents who write enclosing stamps for copies of Health, to address their inquiries to the Publisher, *and not to the Editor.*]

GENERAL.

Onyx.—The work concerning which you inquire is published by Messrs. Longmans & Co. Write to the publishers for a catalogue.

J. Nicol.—The firm is a quack one. The fact that the names of no qualified officers are published clearly indicates, either that the said officers are ashamed to avow their connection with the concern, or that they are non-existent.

E. B. H.—The term Algæ is one applied to the lower plants at large.

A. C. O.—Better try the second plan you mention. The first is decidedly unsafe.

J. Axon.—Consult a solicitor.

W. R. Crawford.—We believe the paper was printed for private circulation. We do not know where it is to be procured. Send a post-card to Mr. Heywood, bookseller, Manchester, explaining your desires.

A Working Man (No. 1).—For advanced reading in physiology you might try Foster's "Physiology" (Macmillan & Co.), or Hermann's "Physiology" (Churchill). A very nice manual on Physiology, by Mr. Power, has recently been published by Messrs. Cassell & Co., in their series of "Student's Handbooks." For biology you might read Huxley and Martin's "Practical Biology," (Macmillan), and Dr. Andrew Wilson's "Zoology" (W. & R. Chambers).

SANITARY.

Smoke.—The gas given off from alkali works is chiefly hydrochloric acid, and destroys vegetation to a great extent; but the question, whether or not the vapours are injurious to human life, has not been definitely settled. There is a lack of evidence to show that the fumes, or gas, is noxious in this sense.

B. A. and Inspector.—The report on Extra-mural Sepulture was given in 1850. In this report it is stated that the vapours of thickly-crowded graveyards certainly increase the death-rate of the immediate neighbourhood.

Student.—By volume, pure air consists of 20·99 per cent. of oxygen, ·033 of carbonic acid, and the rest nitrogen, water, and ammonia, the latter being present in mere traces.

M.—It is evident your neighbour is the preventive obstacle. If the drains are as you say, they ought to be put right, as the Sanitary Inspector recommends. You have no remedy at law, we fear, unless you can demonstrate to the Inspector (as representing the vestry) that what you complain of is real; and, from your account, we should say there ought to be no difficulty in effecting this. The mere fact of an unventilated soil-pipe existing is itself a patent fact in favour of reform being most desirable. Why not call in an independent authority (*e.g.*, the Sanitary Engineering Co., 115, Victoria-street, S.W.), and obtain a specific report? Armed with this, you might then ask your neighbour respectfully to reconsider his ways; failing success, then you might consult your solicitor—or, as a final move for health's sake, shift your camp.

MEDICAL.

R. Kay.—Hoarseness may depend on a number of causes, and you do not give any information in your letter respecting the origin of your affection. In a general way, we can only recommend you to pay great attention to your general health. The throat might be sprayed with a solution of alum—ten grains to the ounce—or a piece of borax the size of a pea might be allowed to dissolve in the mouth.

Malvent.—Cases like yours, we think, can only be cured by strict attention to the general health. It is highly important that you should rest after food, avoiding vegetables; let your food be for a time of the lightest possible description. Preparations of Pepsine taken with food might do you good. The condition of the bowels should also be attended to. If not bettered, write again.

Fred Coleign.—We think in your case a course of nourishing food, with the addition of cod-liver oil or the emulsion, taken after food, would benefit you. Your letter gives no information regarding your previous health and habits. The darkness under the eyes is by itself not necessarily a sign of ill-health.

S. L. K.—1. On the principle of being thoroughly unnatural, the practice, in a physiological sense, must be unhesitatingly condemned. This is clearly proved by the train of nervous symptoms which, as a rule, sets in in the cases you name. 2. No; not if the general health has been attended to. 3. On this point we cannot express any opinion; question is a difficult one; but, in any case, must be settled by individual judgment. 4. There is a pamphlet, we believe, by Prof. F. W. Newman, published by Trübner, Ludgate-hill, which might be perused by you with profit.

Tennis.—Articles on physical exercise have been given in our recreation pages since Health was started; we propose to have articles on training shortly. A Turkish bath occasionally is thoroughly enjoyable and beneficial to persons in good health.

Hopeful.—You probably suffer from some form of ringworm. In your case we should deem it advisable to consult a specialist in skin diseases. We can send you the address of such, if desired, on receipt of a stamped addressed envelope.

Sore Head.—We should advise you to continue the cod-liver oil for the child. The head must be thoroughly cleansed night and morning. A little quinine given to the child might also do good. Apply zinc ointment after all crusts have been removed by warm-water bathing; and cover the head with a linen cap. If the crusts cannot be removed by mere warm-water bathing, they should be poulticed.

Pembury.—See advice regarding food given to "Malvent" above. Your troubles are apparently of a digestive nature, and only by regulation of the food and attention to the state of the bowels are you likely to be cured.

One who Seeks Relief.—See our article on hot water in Health, No. 50, page 386. There is no need for you to adopt this plan unless you suffer from indigestion. The coffee you mention may suit you, and you might try cocoa or cocoatina as a beverage for tea.

W. H.—No. "Parrish's Chemical Food" is a thoroughly well-known and reliable preparation continually prescribed by doctors. It is in no sense a quack medicine, its composition being well-known. We should advise you to give *Fer Bravais* a trial, if the chemical food produces any disturbance of digestion.

Foxglove.—All we can say is that it is undesirable as a health measure to regard any drug as a perpetual stay against illness. Your proper course would be to endeavour so to regulate your life that the tolerably slight symptoms you describe might be entirely obviated. We do not think in your case there is the slightest danger of any cumulative action of the drug. Have you looked thoroughly to your digestive habits and food, and attention to resting after meals? They are necessities in your case. Glad to be of any further service.

A Midwife.—Yes; the boracic acid you enclose is right. The crystals have simply been reduced to powder, as in that state they are more readily dissolved.

Matilda.—1. No; farinaceous foods will not hurt you. Cane-sugar is that which was meant. 2. The hot water is to be taken independently of that taken as soup, or chemically combined with foods. 3. Not unless the enamel is unsound to begin with.

A. B. C.—Avoid fluids late at night; sleep on a hard mattress; cold sponging each morning and plenty of outdoor exercise.

H. F. P. L.—1. Pain probably muscular or neuralgic. Have you ever had pleurisy, or any chest affection? Try rubbing at night with hot oil. Is the pain constant or intermittent? 2. Not advisable to wear any belt in ordinary life. Apt to produce abdominal strain. Try the "Argosy" or "Armstrong" braces.

One in Distress is evidently in a highly nervous state. Look to your general health. Go away for a change. See to your digestion, and let your food be very light for a time. Take Pepsine with your meals. The tonic recommended to "Wellingtonian" in No. 52 Health, should also be tried. Rest is also desirable in your case.

Philadelphia.—See advice to "G. T. B.," in Health, No. 50. You should attend very carefully to state of bowels, and avoid all constipation. If the bleeding continues, and you feel weak therefrom, a simple surgical operation will cure you radically. See also advice to "Jacob," in present number.

Ninon.—Paint the toe-joint with tincture of iodine. Your boot should be roomy, but made to the foot. See advice to "Knock-knees," and "Bunyan" (Health, No. 52), regarding advisability of getting foot well fitted by Messrs. Dowie & Marshall. Nothing can be done regarding the nose, save to exercise care in diet, avoiding stimulants, resting after meals, especially, and being careful to avoid indigestion by attention to food.

Christchurch.—See note on Soda in Cooking, in present number of Health.

Giggins.—We should think you suffer from piles. See advice to "G. T. B.," in Health, No. 50, and to "Jacob" below. Attend carefully to bowels. Avoid constipation. Eat fruits and vegetables, and avoid tea and coffee for a time. Glad to be of any further service. Was no medical opinion expressed at the time you mention?

E. Chapman.—Bathe the hands frequently in a saturated solution of boracic acid. Take also fifteen drops *Fer Bravais* in water thrice daily between meals. If not cured, write again.

Bridgenorth.—Try sniffing the vapour arising from a pint of hot water, to which ten drops tincture of iodine have been added. A change to the sea often benefits cases such as yours, and a little *Fer Bravais*, as ordered to "E. Chapman" above, will also do you good.

Anxious.—[Will please note that the Editor (and not the Publisher of Health) answers queries in these columns. If correspondents would only exercise a little common sense in addressing their queries, they would save much time in receiving replies.] You appear to be troubled with flatulence and indigestion. Rest after your food, avoid tea and coffee for a time, take Morson's "Pepsine" along with food, and attend to state of bowels. Prescription enclosed is calculated to do good in a case of indigestion with acidity.

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Mrs. F.—Avoid all compression (as by corsets or garters or tight dresses) of your body. At night, have the arms rubbed with warm Vaseline. See to the state of stomach, &c. A little out-door exercise, by way of stimulating the circulation, would not be amiss. Write again if not bettered.

Anxiety.—Light foods, rest above all after meals; "Pepsine" with the food, and attention to bowels. All your symptoms arise from faulty digestion. Avoid tea and coffee for a time. You are also possibly over-worked, and this is in itself a cause of such troubles as yours.

Expectant.—We have no faith whatever in the belts you name. Those we have seen are of the usual nature—pieces of flannel into which are sewn discs of metal, which are as useless for producing electricity as a locomotive engine is for reaching the moon. Read Mr. Carpenter's articles in Health on "Electrical Appliances," and you will see what he says regarding tests for genuine ones.

A Working Man should send stamped addressed envelope, when we will send him a dentist's address.

Capillary.—Try the following as a hair-lotion (label "for outside use only"):—Balsam of Tolu, 2 drachms; Oil of Rosemary, 20 minims; Tincture of Cantharides, 1 drachm; Castor Oil, half an ounce; Prepared Lard, one and a half ounces. Rub in night and morning to roots of hair. Wash hair once a week with Pears' Soap and tepid water, and use a soft brush.

Lonely One.—Glad to be of any service to you. Try the effect of hot salt foot-baths; and in warm weather bathe the feet in a solution of boracic acid and water. If not bettered, write again.

H. W.—See advice to "Capillary" above.

Caom.—No; we don't think you need be alarmed. The system recovers under generous diet, warm clothing, and simple attention to general health. Avoid alcohol—for a time, at least; it is apt to be injurious in such a case as yours. A little claret and water at dinner would do no harm. Smoking (in strict moderation) can do no harm. There was no need in your case to have given you the drug at all.

Richard III.—Better leave the scar alone. It can do you no harm, and tampering with it may do you injury. You might see a surgeon; but from your account we gather you are in good health.

J. J. C.—See advice to "Lonely One" above, regarding bathing feet with boracic acid solution.

Nom-de-Guerre.—Prescription appears to mean a powder composed of alum and borax, 10 grains each, (provided what you give as "*ad*" is written in the prescription "āā,") and twenty-four such powders have been ordered.

Jacob.—You should try for piles "Barlett's Pile Suppositories," to be had (by post) from Messrs. Barclay & Co., 95, Farringdon-street, London, E.C.

Penge.—See advice to "Jacob" above.

Grace.—There is no cure for forehead wrinkles. Simply attend to your general health, and see that the skin itself is healthy.

E. Richardson.—We do not understand what it is you require. Use cold sponging, and take plenty out-door exercise.

Phthio.—We have no faith whatever in the treatment to which you allude. Its author is, in plain language, a quack.

A. B. S.—You mistake the nature of the secretion to which you refer. Use cold sponging, attend to your general health, and try weak injections of Condy's Fluid and tepid water: one part Condy to 20 or 30 water.

W. Garton.—We should say decidedly have the teeth removed. Decayed teeth in the first set are apt to affect the second set. As regards the other boy we should recommend you to try a course of cod-liver oil. This will probably strengthen him and improve the voice.

A. D. Athol.—We should recommend you to undergo a thorough medical examination. It is possible that your cough arises from the indigestion from which you suffer, but as you are otherwise in low health, a thorough medical examination is necessary.

Tom Chester.—1. Avoidance of all acid foods, and try a bismuth tablet or two, which may be obtained from any chemist. 2. The special merits of the braces are the extreme ease and comfort in their wear, and the avoidance of all tightness and strain. Inquire of any hosier for their price. 3. As a nerve tonic you might try that of Mr. Thompson, 17, Gordon-street, Glasgow.

Llewelyn.—See advice given to "A. B. S." above, regarding injections of tepid water to which a little Condy's Fluid has been added. In addition to this treatment you must rest as much as possible, seek a change of air if convenient, and take a teaspoonful of Fellows' "Syrup of the Hypophosphites" in a wineglassful of water thrice daily before food.

F. Flood.—You will have a difficulty, we anticipate, in obtaining sufficient nitrogen unless you have access to lentils, peas, or beans. 2. A little "Æsculap" water in the mornings. 3. Bread, cocoa, and milk constitute a nutritious dietary, but for health's sake it ought not to constitute the sole diet. A change of food is desirable in any circumstances of life. 4. No. Sleep and rest are certainly necessary or beneficial for a nervous person.

George Barnett.—Thanks for your communication. What you mention is interesting, but by no means uncommon.

Viscen.—We should strongly advise you to shave completely for some considerable time. There is evidently in your case an inherent weakness in the hair-bulbs, and only by persistent shaving can you strengthen them and hope for a return to your normal state. No other treatment, in our opinion, is of avail.

Mac.—Yes; by all means boil the water or use Burrow's Malvern water for a time. Pure water is an absolute necessity of life. Persevere for a time with the hot water. Rest after food, and Pepsine (taken with the food) are calculated also to do you good.

Cricketer.—1. Yes; opening the eyes below cold water occasionally is a safe practice. 2. Smear the eye-lids with a little Vaseline at night. 3. Cold water, as taken, acts as a mild aperient.

Hopeful.—You seem in a nervous condition, and it is evident your cure must be mental rather than physical. The tonic you name will do you good. Why not try the effect of a holiday and change of air? Food should be very light for a time.

J. N.—Rest after food. Don't eat late at night, and try Pepsine with your meals. If you are overworked, nothing save rest and avoidance of the overstrain will relieve your symptoms.

Reader.—See advice to "Cricketer," above. You will do well to give your eyes as complete rest as possible for a time, and especially to avoid reading or working at night.

W. C.—You do not give any details of your health to enable us to judge of the nature of the symptoms of which you complain. Send fuller details, and state how long you have suffered.

A Young Man.—The bill you enclose is that of a notorious quack. As you value health (and purse) have nothing whatever to do with him.

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HEALTH

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, APRIL* 18, 1884.

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Notes by the Way

"Health is the foundation of all our physical happiness."—*Herder.*

The seventh cholera report of the German Commission supplies some important details regarding the manner in which cholera epidemics arise. The idea being entertained that this disease is spread by means of infected water, seems to be borne out by Dr. Koch's latest contributions. The Indian "tanks" are ponds from which the water-supply of villages is drawn. They are open pools, used by the inhabitants for bathing, washing, and other purposes, and the drainage of the surrounding huts or dwellings is allowed to escape into the tank. The "closets," indeed, are often erected on the banks of these tanks, and the water-contamination which ensues is, of course, of thorough and complete nature.

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Cholera outbreaks are known to occur with terrible frequency in the neighbourhood of these "tanks," and an investigation of an epidemic associated with a special suburb (Saheb Bagau) of Calcutta, proved the dependence of the disease on the unsanitary conditions which had a "tank" for their focus. Around this tank a number of huts are built; the inhabitants numbering a hundred or so. Cholera broke out amongst this limited population, and seventeen persons died; but no cases of the disease were reported as having occurred in the police-district in which the tank was situated. An interesting fact—related in a marked manner to the information we recently published in these "Notes," respecting the behaviour of the cholera-germ under moisture—was discovered, when the linen of the first patient who died of cholera was found to have been actually washed in the water of the tank. Here, at least, was what appeared to be an initial stage of the epidemic, and subsequent investigation of the water proved how completely it served the purpose of an infecting medium.

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The water was chemically and microscopically examined. The first samples examined were found to be crowded with the characteristic cholera *bacillus* or germ. Later on, and towards the close of the attack, these germs could only be obtained from a part of the tank which was exceptionally foul and dirty. Here there would seem to be "confirmation strong" of the manner in which cholera is propagated through an infected water-supply. There is little doubt that the contamination of water at home was a frequent means of cholera-infection in past years; and we know certainly that typhoid fever is propagated in like manner. Dr. Koch repeats what his former experiments have indicated, namely, that the cholera-germ finds its way into our bodies in a moist state. Dryness seems to be fatal to the germ.

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His Royal Highness the Duke of Cambridge will open the International Health Exhibition on behalf of the President, H.R.H. the Prince of Wales, on Thursday, 8th May, at noon.

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The Paris Academy of Medicine has recently been engaged in discussing the value of modes of treatment of that serious disorder—diphtheria. Dr. Delthill lays great stress on fumigation with two hundred grammes of tar and eighty-three grammes of turpentine—a "gramme" is nearly sixteen grains English. The fumigations are said to be highly effective and to be pleasantly borne by patient and attendants. It will certainly add to the triumphs of medicine if a specific treatment for diphtheria can be agreed upon and practised.

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Dr. Parsons, of Dover, does not agree with Dr. Robinson in laying the cause of the recent sore-throat epidemic at the door of the Dover milk-supply. The former regards it as "not proven" that the disease arose from infected milk. It will be remembered that in Dr. Robinson's report, of which we lately gave a summary, the cases of disease were regarded as traceable to the use of the milk of a certain dairy or dairies. Dr. Parsons adds that "many cases of sore throat occurred amongst the drinkers of milk from other dairies; but these do not appear to be included in Dr. Robinson's report." There is evidently matter for discussion in the recent Dover epidemic.

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The backwardness of many school-children is often a source of mystery to the teacher, and of annoyance to the parents. But comparatively few of the latter ever think of thoroughly investigating the state of their children's eyes and ears, and of ascertaining whether or not they see and hear with precision. Dr. Gellé, of Paris, tells us that from 20 to 25 per cent. of French school-children are deficient in their hearing powers. This result, chiefly noticeable amongst the children of the lower classes, seems to arise from the want of attention to those slight ailments of the ear—earache, "running" ears, &c.—from which many little folks suffer. French teachers are now on the *qui vive* for such causes of backwardness, and have arranged that children with defective hearing-powers shall be placed in schoolrooms in positions suitable for them.

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The eyesight of children, also, should not escape the notice of parents and teachers, from an educational point of view. Many children are naturally somewhat shortsighted, and the light of schoolrooms is not always what it should be. Hence early attention should be paid to the eyes, and erroneous visual habits corrected under medical advice. Much pain and annoyance, to say nothing of worldly disadvantage, might be saved if parents were more fully alive to the importance of attending early to defects of the senses in their children.

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The Public Health Committee of the Edinburgh Town Council has recently ordered all milk purveyors in that city

to forward their addresses to the committee in order that their premises may be inspected by the Medical Officer of Health. This, we need hardly say, is a step in the right direction, and one that might advantageously be imitated in other large towns. Professor Chiene, of Edinburgh University, in a letter to the *Scotsman*, however, points out that the labours of the Medical Officer of Health are already so onerous that he will find it almost impossible, within a reasonable time, to personally inspect, and report on, the large number of milk-shops and dairies (close upon 700) that exist in the city. He, therefore, strongly advocates the appointment of a thoroughly qualified inspector for the purpose, whose duty would be to periodically examine the milk-shops and dairies inside the town, and also those outside in the immediate neighbourhood that are in the habit of sending milk into the city.

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It will go without saying that Professor Chiene has our heartiest sympathy in this matter. For ourselves, we should be glad to see a special "Inspector of Dairies" appointed in each town. Not only should this official have the power of inspecting the shops where milk is sold, but the farm-houses from which it is procured in the first instance, and their water-supply should also be examined. The matter, however, as we have pointed out, really lies with the people themselves, and until they fully recognise its great importance as affecting themselves, little, we suppose, will be done. For our part, we have always endeavoured to place the subject before our readers as clearly and forcibly as possible, and only last week we drew attention to the matter by citing the case of an epidemic of throat disease that had lately occurred through this cause at Dover. We also cordially coincide in Professor Chiene's desire that all milk-sellers should be licensed, and we sincerely trust that before long this part of the programme will be carried out.

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The *Index* to Vol. II. will shortly be ready, price 2d., and may be had on application to the publishers.

We regret to announce to the readers of Health the decease of Dr. Alexander Baird, of Perth, one of the contributors to this journal, and a well-known and esteemed writer on topics connected with medical journalism and sanitary science. Throughout a long and trying illness, which entirely incapacitated him from the practice of his profession, Dr. Baird contrived to execute a large amount of solid literary work. The fresh and crisp "Scottish Notes" of the *Lancet* were the products of his facile pen, and to our own columns he contributed now and then articles marked by a high felicity of expression and by great clearness of style. The article on "More Mistakes in Medicine," appearing in the present issue, was written by Dr. Baird, and was the last article he penned for this journal. In Dr. Baird, the cause of public health and sanitary reform possessed a skilful advocate, and he will be sorely missed in those literary circles in which his contributions found a warm welcome. At the time of his death, Dr. Baird had written for Health a series of papers on "Infancy," and these, we trust, may appear in our pages. For ourselves, we mourn the loss of an intellectual friend, and of one whose warm interest in the work of Health was frequently shown by the valued advice and by the many suggestions for which we were indebted no less to a kindly heart than to a cultured mind.

Original Essays

"Life is not to live, but to be well."—*Martial.*

THE "SIX-FINGERED" CONDITION AND ITS INHERITANCE.

By Dr. Andrew Wilson.

In the last number of Health I referred to the part which disease had played in the production of human transformations. The curious facts and inferences of Professor Klebs were then detailed, and the probable transmission of diseased conditions commented upon. The idea that a state which begins as a departure from the normal and usual history of man, may, in the course of time, appear by inheritance as a natural feature of the race, is fostered by the facts of physiology and medicine alike. The disease which, in one case, kills off the individuals who suffer, in another case adapts itself to the conditions of human life; whilst the human constitution may in turn become adapted to the disease and survive under its attack and reign. Such a condition of matters was illustrated in the article to which I have referred by the case of the negro race. If Professor Klebs' theory be regarded as in any sense trustworthy, it would seem that the dark colour of the race has originated as a product, if not of actual disease, at least of unusual, and physiologically erratic, action. Disease, like other and healthy conditions, may thus inaugurate transformations and changes within the human estate. Man's destiny in this light and his physical transformations, as well as his mental qualities, are seen to be moulded, not always by the normal actions, but occasionally by the conditions which produce the physical backsliding we are accustomed to call "disease."

Amongst the unusual conditions which make their appearance in human life, are certain interesting features connected with the development on hands and feet of extra digits. These "supernumerary fingers and toes," as they are termed, are by no means uncommon, and the family history of the individuals who exhibit the peculiarities in question, becomes remarkably interesting when considered from a scientific point of view. The question of "inheritance" presents in such cases a study involving much that is both curious and important. In the light of the theory of evolution, or even apart from that idea of living nature, and merely as a study in human variation, these "six-fingered" individuals form subjects which become exceedingly attractive to the man of science.

A classic example of the "six-fingered" variation and its perpetuation is found in the case of Gratio Kelleia, a Maltese man, whose history is detailed by Réaumur, the famous naturalist, in his work entitled "L'Art de faire éclore les Poulets." Gratio Kelleia's parents possessed perfectly natural and normal hands and feet; but their son was born with six fingers on each hand and six toes on each foot. The toes were scarcely so well formed as were the fingers. There is no possibility of accounting for the sudden appearance, so to speak, of this six-fingered individual. History is silent regarding his ancestry. But that it is perfectly possible for variations to appear in high and low life alike, without previous warning of their coming, is a fact well known to every student of natural history. Nature sometimes does "take a leap," and send an individual off at a tangent on the way of development.

In due time Gratio Kelleia married. His wife's hands and feet were perfectly natural in every respect. To this

couple were born four children—three sons, respectively named in order of age, Salvator, George, and André, and a girl named Marie. In this family circle the father's variation from the normal type of hand and foot appeared perpetuated in a singularly clear manner. Salvator, the eldest son, had six fingers and six toes on each hand and foot, like his father. George and André did not develop any extra digits. They resembled the mother, but the hands and feet of George were slightly deformed. Marie had five fingers and five toes like the mother, but her thumbs were deformed. Now, in this first generation the six-fingered and six-toed variation thus declared itself with plainness and certainty. In one case, the variation was produced in all its exactitude. In the second son and in the daughter there was indicated a tendency towards the reproduction of the deformity, while in only one case—that of André—was there a perfect representation of the normal state.

But the family history of the Kelleias was traced to the second generation; and here more interesting details present themselves to view. The sons married wives possessing the natural number of fingers and toes, and the daughter espoused a husband who was likewise provided with normal hands and feet. Taking Salvator's family first, we find four children born, of whom three showed the six fingers and six toes of their grandfather and father, while the youngest child possessed the natural hands and feet of grandmother and mother.

The family of George consisted of four children. Of these the two eldest (girls) possessed each the six fingers and toes of the grandfather; the third child (also a girl) possessed, curiously enough, six fingers on each hand, and six toes on the right foot, but five toes on the left; while the youngest child (a boy) was perfectly normal, and resembled his mother completely. André had a numerous family, all of whom were perfectly natural in respect of their extremities. Of the four children of Marie, her eldest (a boy) showed the six fingers and six toes of his grandfather, the other three children exhibiting no such peculiarity.

This history, therefore, shows us that the variation which began with Gratio Kelleia, and which was repeated with increased force in his children, became intensified in the next generation. In Salvator's case, the abnormality was naturally represented in its fullest form; but even in the case of the daughter Marie, who started life with thumbs merely deformed, and who married a husband possessing normal hands and feet, the six-fingered variety came prominently enough to the front. There can be no question, considering the strength and potency of the variation, even when labouring under the disadvantage of mingling strongly with normal blood, that if the individuals whose history is thus detailed had mated with six-fingered partners, the increase in the six-fingered offspring would have been most marked, while the abnormality itself would have appeared of singularly pure and unmixed nature.

In the "Guy's Hospital Reports" (Vol. XXV.) Mr. R. Clement Lucas gives an exceedingly interesting account of the tendency towards the perpetuation, by inheritance, of the six-fingered variation. In the family whose history Mr. Lucas details, so well known was the tendency to the perpetuation of the six-fingered and six-toed variation that when an infant was added to the family the father's "first thought was to examine its feet and hands." The variation in question appears to have begun in the great grandmother of the family. It occurred in no less than 24 persons out of a total of 80 descendants, or 30 per cent. of those descended from this lady; and Mr. Lucas adds that considering the "new blood" which has been infused into the family circle by marriage, "the persistency with which this tendency asserts itself is very remarkable."

The grandmother (on the mother's side) had a family of eight, five of whom (two sons and three daughters) were born with abnormal hands and feet. Her eldest son suffered from no deformity, but three of his children (out of a total of nine) were affected. The second son, a man over six feet in height, had six toes on each foot. He had seven children, three of whom were affected. The third son, who had normal hands and feet, had also seven children, and all seven escaped deformity. This latter fact, curiously enough, parallels the case of André Kelleia already noted. The fourth son, who had no family, possessed six toes on each foot, and in addition suffered from harelip. The eldest daughter was six-toed; and to her were born four sons and a daughter. Two sons (first and fourth) had extra toes, while the remaining children were normal. The second daughter's peculiarity consisted of an extra finger on each hand. She had ten children, six sons and four daughters, and out of the number only two were deformed, a son (the second child) and a daughter, who ranked fifth in number. The third daughter of this family was the grandmother of Mr. Lucas's patients. She possessed an extra finger on each hand. The youngest daughter showed no deformity. She remained unmarried.

Coming now to the generations succeeding this first, Mr. Lucas tells us that the grandmother in question (the third daughter above-mentioned) had seven children, five sons and two daughters. The eldest, a daughter, was born with one extra finger. She had no family. The second, a son, had six toes on one foot, and seven on the other; with five fingers and a thumb on each hand. To him were born five children, four sons and a daughter. Three of the sons (the two elder and the youngest) had extra digits. The third son, born normal, had twelve children, all likewise normal. The fourth child, a daughter, was born normal; she had no children.

The fifth child was the father of Mr. Lucas's patients. He had six toes on one foot, and seven toes on the other, the inner toes were webbed; and five fingers and a thumb were developed on one hand. Here, the abnormality bred strongly. His eldest son, had a cleft palate and harelip, and a web between the great toe and the next, in each foot. His second, third, and fourth children (two girls and a boy), escaped deformity; but the youngest son was born with six fingers on each hand, six toes on each foot, and a web between all the toes.

The sixth son (uncle to the children last noted) was born normal, and had three children, all normal likewise; and the same natural condition was seen in the seventh child (a son), whose daughter was also born without deformity.

The cleft palate and harelip mentioned above were foreshadowed, as Mr. Lucas points out, in the harelip which occurred, as noted, in a great uncle.

These cases of human variation become interesting from the point of view which regards man as living under conditions of life which materially affect his physical well-being; and they further show, in an instructive fashion, how powerfully the laws of inheritance operate, when once an initial stage or starting-point, in health and disease alike, has been developed.

A Valuable Invention.—It is gratifying to learn that Mr. R. Adams, of 17, Blackman-street, London, S.E., whose fanlight-openers and silent door-springs are being extensively used, has received large orders for his Patent Reversible Window. The sashes, although they slide up and down in the usual way, can be instantly turned inside out, enabling anyone to clean each side of the glass with ease, while standing in the room.—[Advt.]

MORE MISTAKES IN MEDICINE.

Having in a former paper referred to the common tendency manifested in various classes of society towards the inordinate use of drugs, it may be profitable to consider in detail a few of the more common errors committed in the domestic treatment of disease, and the false notions prevalent with regard to certain maladies and means of cure. There are a number of prejudices met with so frequently that they might almost be considered universal; and whether they tend in the direction of meddlesomeness in treatment, or are present as obstacles to the rational management of the sick, it would be well if some progress could be made towards their eradication.

Perhaps nowhere is the necessity for more light needed than amongst mothers and nurses called upon to use the *bath* in the treatment of children, or of adults suffering from the various fevers. Nowhere are physicians met with resistance at the hands of those whom they direct so commonly as in the use of the cold bath. There appears an almost impenetrable prejudice against immersion, and even sponging is not unfrequently neglected from a fear that injury instead of good may result. The use of the thermometer has indicated a temperature of perhaps 105° Fahr., the heat of the body in health being 98° or 99°. It becomes an urgent necessity to have the record reduced. The cold bath has been proved times out of number to be of incalculable value in the hands of the physician, and yet the nurse fears and often refuses to faithfully carry out the routine of treatment by the cold bath. It would be of distinct service to medicine could a healthy opinion on this question be cultivated among the people generally; because so long as an unwilling assent is given to a particular method of managing cases when punctuality and persistency are required, there is almost a certainty that excuses will be found for departing from orders, and the patient's interest will be sacrificed. It may be said that no one consults a doctor who is unwilling to follow his advice, and so it should be. But experience abundantly proves the existence of a difficulty with regard to this question of cold bathing, even in cases when confidence is not wanting. It should, then, be understood that the high temperature itself, if allowed to continue, very rapidly exhausts the patient, and may quickly cause death; that immersion in cold water or water of a temperature varying from 50° to 80° Fahr., but *distinctly below the heat of the body*, for a period of time varying from ten minutes to half-an-hour reduces the body's heat till the natural record is reached, and that in many cases the good effects are continuous. It may be that the fever again rises, and the bath is again needed. Cases are quite familiar in which the bath had to be used almost continuously for days and even weeks. But what it is important to know, is that thousands of lives have been saved by simple bathing, and that the risk in appropriate cases is *nil*. It is this supposed risk which so fatally hampers the general adoption of a method which has had such excellent results. Stories or traditions exist relative to the occurrence of a death in the bath, and on this account hesitation is felt. It is quite possible that a child may have died while in the water, but it is perfectly certain that no death has yet been caused by immersion of itself, if due care has been exercised in selecting the case. The diseases for which this treatment is recommended are frequently attended with much risk to life, and the bath may be insufficient to avert death. But all who have the care of patients ordered by the physician to be subjected to bathing—hot or cold—should throw aside hesitation, and welcome such a promising aid to cure. If disease be acute, the physician should be sought before the *cold* bath is administered, but in many cases it is advisable that a hot or tepid bath be used without the formality of medical advice. One cannot conceive of a case in which a sane individual would propose a tepid bath where harm would result. In dozens of instances in the up-bringing of a family the necessity for its use is met, and in cases of chill, slight fever, restlessness from indigestion or talking, and the approach of scarlet fever or measles, five minutes' immersion may be all that is necessary to allay irritation, provoke quiet sleep, and ensure escape from any risk which may be present. The habitual use of the bath does more than any other single influence—unless warm clothing—to determine the shocking difference in the death-rate between the children of the rich and those of the poor.

Among adults in disease, the use of the cold bath is restricted to severe cases of fever, and the application of hot water to the outset of colds; but, though now-a-days most families in the middle and upper classes indulge in frequent "tubbing" for its cleansing and health-giving virtues, there is still an unwholesome dread of the morning dip, especially among people of or above middle age, and the working classes have too limited means of enjoying what should be the privilege of every citizen.

Another mistake, which is, perhaps, more rapidly being exposed than the terror of the bath, is the tendency to coop up patients, and especially children, in rooms of insufficient cubic space and with such provision against draughts as to prevent anything like due ventilation. It is astonishing to notice the amount of common sense necessary to the understanding of the simple laws underlying the question of ventilation. Could it but be remembered that a patient ill of acute disease requires, from the amount of tissue waste, and consequent air-pollution, a larger instead of a lesser amount of space, and of air-circulation than a person in health, we would cease to have grounds of complaint against the stuffing of doors, windows, and chimneys, and would pass into sick-rooms without the feeling of oppression and stuffiness now so commonly met with. The re-breathing of air charged with the gaseous and other emanations from the sick, is not only in many cases an immediate danger to others, but is in all cases, fraught with serious injury to the patients themselves.

Too much space would be necessary to relate the oft-told tale of the best methods of ventilation. Suffice it at present to point to the common error of going a measurable distance towards the suffocation of sufferers; but we may ask readers to remember that if direct draughts are kept

Scott's Midlothian Oat-Flour.—Messrs. Scott, of 82, York-street, Glasgow, have prepared a singularly pure and nutritious "Oat-flour," which bids fair to take high rank among the food products which are specially adapted for infants and invalids, and for the use of dyspeptics in particular, whose digestion is weak, and whose stomachs refuse to assimilate foods of ordinary kind.—Ed. Health.—[Advt.]

Medical and Sanitary Exhibition, 1881.—Award of Merit.—Diabetes. Van Abbott's Gluten Bread, and all other suitable Foods for Diabetic Patients. Dietary Tables and Price Lists post-free on application. Van Abbott, 5, Princes-street, Cavendish-square, W.—Delicate Children and Adults Suffering from Nervous Depression. Van Abbott's Hypophosphite of Lime Biscuits, for Delicate Children, especially those suffering from Deficiency of Bone, Weak Joints, or Debility, and Adults suffering from Nervous Depression. Each Biscuit contains five grains of the Hypophosphite of Lime. "Quite free from disagreeable taste, and taken willingly by Children, and certainly provide an excellent means of administering this valuable compound. Our analysis proves the accuracy of the printed descriptions on the labels of the boxes. The Biscuits were suggested by Mr. W. Adams, of the Orthopædic and Great Northern Hospitals." — *Lancet*, Nov. 4, 1876.—Van Abbott, 5, Princes-street, Cavendish-square.—[Advt.]

away from the patient, and the rooms are kept of a temperature averaging about 60 degs. Fahr., doors, windows, or preferably, ventilators, can be kept open night and day with decided benefit.

A third long-living mistake regarding the diseases of childhood is the assertion that our little ones should be wilfully exposed to such ailments as whooping cough, scarlet fever, and measles, in the assurance that they will be caught at one time or other, and the sooner the better. It is marvellous that such a creed as this should be practised in an age of progress and of science; but it is an undoubting belief and an habitual practice among large classes of the population. It is a terribly fatal error—perhaps the most serious under which the average Englishman labours regarding disease. When it is mentioned that the number of deaths from the three children's ailments named, occurring annually in the United Kingdom, may be put at about 40,000, some idea may be gained of the danger which attends complaints generally thought simple, and taken as a matter of course. Most sanitarians will agree in saying that this enormous total could with certainty be reduced to one-half its present proportion were intelligent care taken to insure isolation.

Nor is the separation of the sick at all difficult in these maladies, if we except the whooping-cough; as not only can measles and scarlet fever be easily prevented from spreading to the community generally, but even in particular families having sufficient accommodation for home treatment, there is no insuperable difficulty in confining the outbreak to the first individual affected. In working-class households the space is so limited that the utmost efforts should be used to keep the enemy at a distance; for, on entrance being gained, the risk of infection is such, and the cares of the housewife so numerous, that the whole family may become affected. It becomes more and more evident that the only satisfactory manner of dealing with infectious diseases in houses of one to three or four rooms is to enforce complete separation by removal to hospitals, specially provided from the rates for the treatment of such cases. But so long as it is thought advisable to actually submit children to infection there can be no desire for isolation, and the best efforts of sanitarians will be wasted. Could the fact above mentioned regarding the fearful mortality of these infantile fevers bury itself deep in the consciences of parents; could they but feel the terrible responsibility of risking the lives of their own and their neighbours' children, we might hope that the knowledge that millions of their fellow-countrymen have never been afflicted with one or more of these forms, would lead to the most jealous watching against attacks so frequently fatal. Let us but bear in mind the good sought—a saving of 20,000 innocent lives each year; let us cease to imagine diseases trifling which tell such a tale in the Registrar-General's report, and, ere long, statistics of a more favourable kind will be forthcoming, and untold misery be avoided.

Clear boiling water will remove tea stains. Pour the water through the stain, and thus prevent its spreading over the fabric.

Orange Leaves as Medicine.—The dried leaves of the bitter-orange tree are largely used in South America as a household remedy. An infusion of them made as we make tea is considered in Brazil a specific for sick-headache, flatulence, indigestion, hysteria, spasm, recent colds, and chills and fever. Its free use promotes abundant perspiration.

The Family Circle

"The child is father of the man."—*Wordsworth.*
"In bringing up a child, think of its old age."—*Joubert.*

ECONOMICAL BREAKFASTS, DINNERS, AND SUPPERS.

By Mrs. Thwaites, of Liverpool.

SEVENTH PAPER.

Breakfast.—Cold meat is not a presentable dish at any meal, and is less appreciated at breakfast than at any other time, and yet, on grounds of economy, it is often desirable that it should be used in some way or other. A capable housewife will not only be able to practise the following recipes, but will gather hints and ideas as to other modes of dealing with cold scraps.

Suppose there is in the larder the bone of a cold shoulder of mutton and a plate of cold potatoes, what can be more unpromising? Yet, with a little seasoning, a little time and trouble, a most appetising dish of rissoles can be produced. Cut all the meat carefully from the bone, break up the bone, and put it into a pan with a few vegetables and seasoning, cover with cold water, and boil for an hour or two. This stock may be used for soup, gravy, or as an addition to any made-up dish of cold meat. The meat (about half a pound) must be either passed through a mincing machine or chopped as fine as possible. In a dish of this kind, it would be a mistake, unless there were some very special reason against it, to remove all the fat. Put into a small saucepan one ounce of either butter or dripping. Just dissolve it over the fire, and add half a teaspoonful of finely-chopped onion. Cook gently for three minutes, and add two ounces of flour and a quarter of a pint of either stock or water; stir altogether over the fire to a stiff smooth paste, which, when sufficiently cooked, leaves the side of the saucepan quite clean; turn it out into a bowl, add the minced meat, half a pound of cold potato, mashed by rubbing it through a wire sieve, and the following seasonings, one teaspoonful of salt, a third of a teaspoonful of pepper, a small pinch of cayenne, a dessert spoonful of mushroom ketchup, and a teaspoonful of anchovy sauce. Mix all these ingredients thoroughly, then take a little flour to dip your hands in occasionally, make the mixture into balls about the size of a walnut, taking care to have the surface free from cracks and quite smooth. There should be from 20 to 25 rissoles out of these materials; dip them in raw egg, and roll them in stale bread crumbs, and fry in smoking hot fat. The best mode of frying is to have enough fat in a stewpan to fully cover the rissoles, and to place them in a wire frying-basket, and when the fat sends up a pale blue smoke, set the basket in it. Two to three minutes will cook them. They should be a beautiful brown colour, and perfectly dry and crisp. Serve on a hot dish, garnished with parsley. The chief fact to be remembered in the foregoing directions is that the fat must be hot enough; if it is not, the rissoles will be greasy and sodden, but a little care will prevent this if the fat be carefully watched.

Many people imagine that when fat bubbles it is hot enough but it really is then only 212 deg. Fahr., the heat of boiling water, and the bubbles are caused by

The "Spécialité" Lime Juice, for family daily use throughout the year, has not the usual musty flavour; will not turn mouldy; may be obtained of Chemists and Grocers.—Feltoe & Sons Albemarle-street, London, W.—[Advt.]

the water, that from various causes is contained in the fat, turning to steam. After a time, the bubbling ceases and the fat becomes perfectly still; soon after, the smoke begins to rise and the fat is hot enough for frying purposes (350 deg. Fahr.). Fried dishes that are greasy and sodden are most unwholesome for everybody; for some people positively injurious. The rissoles can be prepared, all but the frying, the evening before they are wanted. The fat when done with should be cooled a little and strained; it may be used a great many times.

Potted Beef.—1 lb. of cold beef, mince it, and pound it well in a mortar; add to it while still in the mortar two ounces of dissolved butter (good dripping may be used), a good teaspoonful of salt, a third or more of a teaspoonful of pepper, a pinch of cayenne, half a saltspoonful of grated nutmeg, and the same of ground cloves; pound all thoroughly together in the mortar to a smooth paste, press it well down into small jars, and cover with clarified butter or dripping. A very thin covering of this will exclude the air, and make it keep for a few days, or longer in cold weather. To clarify butter or dripping, dissolve it over a very gentle heat, remove all scum from the top, and pour the clear fat off from whatever sediment there may be.

Dinner.—*Oyster Soup.*—The bones of a sole or plaice from which the fillets have been removed; wash them quickly in cold water, break them up and put into a saucepan with a small onion, a stalk of celery, a turnip, a little bit of mace, a teaspoonful of salt, and a sprig of parsley; cover with a quart of cold water, boil slowly for an hour and a half and strain; put the stock back into the pan, mix a tablespoonful and a half of flour smoothly with half a pint of milk and a quarter of a teaspoonful of pepper. Add this, together with the liquor from a small tin of oysters, to the pan, stir until it boils, see that it is sufficiently seasoned, and put in the oysters; cover the pan, and let it stand near the fire for ten minutes. It should not boil after the oysters are put in, they should only be heated through. The same rule applies to fresh oysters.

Rabbit Stewed Brown.—Three ounces of rather fat bacon must be cut into small dice; fry lightly in a saucepan; gather to one side of the pan, and fry two small onions sliced; when they are nicely browned, stir in two ounces of flour; let it brown a minute, and add a pint of cold water; stir until it is thick and smooth, then put in two cloves; salt and pepper to taste. Meanwhile have ready a fresh rabbit, which should be *quickly* washed in cold water, then wiped quite dry with a clean cloth, and cut up into joints. The head should be split open, and soaked for a few minutes in warm water containing a little salt. When washed well in cold water, put the pieces of rabbit into the gravy, which should just cover them. Put the lid on the pan, and simmer very slowly for two hours.

Rice Mould.—Thoroughly wash half a pound of rice in cold water, put into a saucepan with half a teaspoonful of salt, and half a pint of cold water, cover the pan and cook slowly until the water is absorbed by the rice; add a pint and a half of milk and one ounce of butter, simmer very slowly for two hours; stir it gently occasionally that it may not burn at the bottom. Sweeten to taste with sugar and add any flavouring liked. It should be quite thick, but, at the same time, soft. Wet an earthenware mould with cold water, put in the rice, taking care to press it well down. Let it stand until cold, turn out, and serve with stewed fruit.

Chappuis' Reflectors for the Navy.—Manufactory, 69 Fleet-street.—[Advt.]

Supper.—*Poached Eggs and Macaroni.*—Break up into convenient pieces half a pound of straight macaroni, throw it into a quart of boiling water containing a teaspoonful of salt; boil for twenty minutes, strain away the water, and add either a pint and a half of stock or the same quantity of water and a teaspoonful of meat extract, a teaspoonful of salt, a quarter teaspoonful of pepper; simmer slowly until the macaroni is quite tender but not at all broken. The liquid should be all absorbed. Put the macaroni on a hot dish, and poach the eggs (one for each person) according to directions given in a previous article, place them on the macaroni and serve.

Stewed Celery.—Well wash and trim two heads of celery, remove the outer stalks, put into a stewpan and cover with either water or stock, and simmer for from one to two hours, according to the age of the celery; it should be quite soft; lift up on to a hot dish. Mix one tablespoonful of flour smoothly with either a little milk or stock, add half-a-pint of the liquid from the stewpan, boil it up and season to taste with pepper, salt, and a little nutmeg, pour over the celery. Celery is considered by many people as a preventative against rheumatism, and has been strongly recommended by high authorities. Many people are exceedingly fond of the flavour, but cannot eat celery in its raw state. For them, a dish like the above will prove wholesome. For vegetarians such dishes can easily be modified by leaving out the stock and substituting milk or water.

Waterproof Canvas.—According to the *Milling World*, sackcloth or canvas can be made as impervious to moisture as leather, by steeping it in a decoction of 1 lb. of oak bark with 14 lb. of boiling water. This quantity is sufficient for eight yards of stuff. The cloth has to soak for twenty-four hours, when it is taken out, passed through running water, and hung up to dry. The flax and hemp fibres, in absorbing the tannin, are at the same time better fitted to resist wear.

Sugar in Tobacco.—That tobacco, as ordinarily prepared by some of the manufacturers, is frequently sweetened with molasses, honey, licorice, &c., is not doubted, but we think it will be a surprise to most people to learn that a considerable percentage of sugar is a natural constituent of tobacco. Yet such has been demonstrated to be the fact by Prof. Attfield, F.R.S. Eight samples were obtained from planters in different parts of Virginia, Kentucky, and North Carolina which gave, to 100 parts of leaf, from 5·57 to 9·60 parts of tobacco sugar, and from 8·23 to 12·80 parts of total saccharoid matter. In tobacco grown in unfavourable conditions, or without sufficient heat, the amount of sugar is often but a mere trace, while for light coloured or bright Virginia leaf it will average about ten per cent.

The Gum Arabic Supply.—Gum arabic comes almost exclusively from the Soudan, and, owing to the operations of El Mahdi, there have been no receipts of any consequence for a year past. In confectionery it makes about 30 per cent. of the best quality of gum-drops, marshmallow, and jujube paste, and the Government envelope manufactory at Hartford, Conn., is said to use a ton of gum arabic weekly. The annual supply from the Soudan has, heretofore, been from 20,000 to 25,000 bags, of 400 lb. to 600 lb. each, and there is usually a stock held in London about equal to one year's receipts. This reserve is now about exhausted, and the gum has been steadily advancing in price from the ordinary figures of 8 to 10 cents per lb., until it now commands from 30 to 50 cents, according to quality.

Healthy Houses

"A happy home must be a healthy home."—*Anon.*

EARTH CLOSETS *v.* CESSPOOLS.

By H. T. Munday, C.E.

Few people are aware of the fact that not so very long ago it was penal to connect houses with the public drains, or to pour slop or refuse water of any kind into them. The reason was that these sewers were originally intended and constructed solely to convey away rain and surface water as often as the ancient ditches or streams became obliterated by the growth of our great cities. Old channels constructed for this purpose date back to the times of the Tudors, and probably earlier, and the plans used by their builders are still preserved amongst metropolitan archives. Many of them vast and cavernous remain to this day buried underground, some even still partially in use. Thus it was that the cesspool system, when people knew no better, became a necessity, and hence the cause that so many old houses in London and other places still retain them. Some people, indeed, in the outskirts, retain and use them, as I know from experience, by preference, whilst others unwittingly and unknowingly tolerate their existence below basements and floors until one day fever attacks them, and "something wrong with the drains" being suspected, the "accursed thing" is traced out and destroyed.

But whilst in every town worthy the name a regular system of sewerage is now adopted, it is very different in the villages. There, for the most part, the old regime continues. Such drains as exist are used solely for the rainwater, and the ancient cesspool reigns supreme throughout the greater part of rural England, Scotland, and Ireland. Now it is a sound law of sanitation that foul matter, as soon as it is produced, should be got rid of and rendered harmless, either by deodorisation or else that it should be removed beyond the precincts of the house, and, by means of sewers and otherwise, there be dealt with by the local authority. It is clear enough that the cesspool wholly violates this most important rule. It collects and retains filth till it is in a putrefying and dangerous condition, generating noxious gases, which must force their way to the outer air along the line of least resistance, and there commingling with the atmosphere, they are inhaled by the lungs of those who are unfortunate enough to come in contact with them. Yet the privy, sometimes away from, but often adjoining, most country houses, is looked upon as part and parcel of the ancestral domain, and many excellent gentlemen would witness its destruction with as much indignation as if it were a part of the British constitution. But, besides poisoning the air, the cesspool often does worse than this. Unless thoroughly cemented, which is seldom the case, its liquid contents filter through the soil, and are continually the cause, especially after heavy rains, of contamination to the family well. Even the slight precautions which are sometimes taken in the better class country houses seldom prevail in the houses of the poor. Many a deadly attack of sickness has proved the truth of the parodist's lines:—

Ye cottage homes of England,
How fearfully ye smell;
There's fever in the cesspool
And sewage in the well.

It is only by repeated attacks that this strange and unfortunate prejudice in favour of the midden can be overcome; but before pointing out a more excellent way it may be well to say that if any case should present itself, and there may be a few such, where a cesspool is an absolute necessity, that there is a right and a wrong way even to construct a cesspit. Assuming, then, that it must be employed, it should be placed as far from the house as possible, and built of sound brickwork in cement or hydraulic mortar, rendered inside with neat cement at least half an inch thick. No overflow should be provided unless the outlet can be so placed as to be readily seen, and so that, if it acts, a nuisance should be at once created which would compel immediate attention. For, in truth, surcharging of the receptacle should never be permitted, frequent emptying should be the imperative rule, and means of access for cleansing and flushing-out should always be arranged for if practicable. In addition to this ventilation must be provided by means of large pipes, six inches diameter if possible, but never less than four inches, and in duplicate, so as to form upcast and downcast shafts. These ventilating pipes should be carried up seven or eight feet above the ground, or even more, and placed if possible against trees or other supports. Care must be taken that they are fixed firmly in the crown of the cesspit (which should be arched over by preference), and so that their apertures at either end be not clogged or stopped up. In addition to these precautions disconnecting traps must be inserted on the line of the house drains, so that foul air from the pit may never enter them, and at the same time they must be thoroughly flushed and ventilated. For the former purpose Field's patent flush tank (to be presently described) may be employed with advantage.

That the difficulty of disposing of the refuse of any house, in the absence of water carriage, is great, cannot be denied, but the earth system meets the case better than any other plan that has yet been devised. The Rev. Henry Moule was the first to revive the idea in modern times, but, as all well know, the ancient Levitical law enacted the use of the spade as the best sanitary implement that could be employed in the great camps of Israelites. Moule's Earth Closet Company, of Garrick-street, Covent-garden, London, W.C., will forward to any applicant a full descriptive pamphlet of their apparatus, but I can from actual experience speak to the great value of the dry-earth system, and the ease with which it can be carried out by any one possessing a small quantity of garden ground.

As applied to closets, the method consists simply of a receptacle at the back of the seat, which can be filled either from the inside or outside of the house, according as the closet is on the ground or upper floors. This receptacle receives the charge of dry earth sufficient, according to size, to hold twelve to twenty users or layers. The soil falls into a pail beneath the seat, and on the handle being pulled up, about one and a half pints of mould are thrown directly on the excretion, which is thereby speedily deodorised, and

Pure Water is such a vital necessity that, without it, illness is certain. None are more prone to the ill effects when impure than the young. To ensure a pure supply send a post-card to the London and General Water Purifying Company, Limited, 157, Strand, London W.C., who will return particulars post free.—[Advt.]

Dr. Nichols' Penny Vegetarian Cookery-Book.—Every household should possess this marvel of cheapness. Free for 1½d.—Nichols & Co., 23, Oxford-street, London, W.—[Advt.]

Scott's Midlothian Oat-Flour.—There is no preparation which can be assimilated with greater facility than such a flour as this. Those who suffer from indigestion might substitute for their ordinary breakfast materials this flour, prepared according to the recipe given by Messrs. Scott and printed on the tins.—Ed. Health.—[Advt.]

The "Boncontour" Stay-Belt and other Orthopædic Apparatus, made by K. R. Schramm, Orthopædic Mechanician, 64, Belmont-street, Chalk Farm-road, London, N.W.—[Advt.]

very soon totally disappears by absorption with the earth. The whole apparatus is very neat in appearance, and varies in cost from 25s. to two guineas or more according to fitting. Unless the closets are few in number and the family is a large one, receptacles and pails do not want attention more than once a week, and this can be given at any time in the early morning. The only point that really requires care is the preparation of the earth. This may be dried by air alone, in an out-house or before the kitchen hearth at night; all that it is necessary to be specially watchful of is that it shall not be powdery so as to cause a dust when the charge is thrown. Fine ashes may be mixed with the mould if desirable, and charcoal can be substituted if considered preferable in particular cases. When the supply is limited, the same earth can be used several times over provided it is left exposed to the air for a few weeks after removal from the pails. The manure so obtained is highly fertilising for all kinds of crops or garden produce. For rows of cottages or in large works where the privies are common to several tenants, a brick tank may be built and the earth thrown in with a spade, but this plan is not so desirable as the more expensive but more efficient method of large tanks holding forty or fifty charges fed from receptacles with self-acting seats. The urine collected in a house should not, however, be thrown down the closet, as the quantity of earth is not sufficient to absorb the moisture properly. A special tank or pit should be provided for this purpose, holding enough dry earth to effectually dispose of it. All other slop water, whether from sinks or basons, may be most effectually dealt with by a small system of sub-irrigation. For this purpose pipes of common earthenware must be laid from the house to the garden or any other convenient spot, and wherever the irrigation is applied the joints must be left open so that the water may percolate into the soil and be effectually disposed of. From one to two feet is a sufficient depth for the purpose, and the pipes may often remain several years without being taken up for cleaning.

The flush-tank invented by Mr. Rogers Field and sold by Bowes, Scott, & Read, of the Broadway-chambers, Westminster, is a most valuable adjunct to a system of the kind just described. This ingenious apparatus stores up small driblets of water which would otherwise pass down the drain and cause deposit, and eventually, when the quantity is sufficiently accumulated, discharges it with great velocity and flushing power. The principle is simply that of the siphon, either in the annular or common form, enclosed in a chamber of brick, iron, or earthenware, and adjusted to go off when the tank is full by the addition of a very small quantity of water. It is, of course, self-acting, and when applied to a kitchen sink operates as a good fat interceptor as well, the fat and refuse collecting at the bottom, from which it can be periodically removed. This apparatus can be, and is, most extensively employed in all drainage works of whatever kind, and is often used with clean or dirty water for flushing purposes alone, when the fall of any drain to which it is applied is inadequate to keep it free from deposit.

In some large asylums and schools the pail system without admixture of earth is employed, the pail being generally first half-filled with water. This method can be only worked effectually if the pails are removed and emptied daily, and the contents afterwards dug into the ground or otherwise deodorised. It is by no means so cleanly or efficient as the dry-earth system when properly carried out, and cannot, therefore, be recommended in comparison with it.

Pownceby's Pure Wines and Brandies, as analysed, and especially selected to suit medicinal purposes, may be obtained in small quantities at wholesale prices. Free delivery within fifty miles. Circular and price current by post from Pownceby & Co., Wine and Brandy Importers, 183, Oxford-street London, W.—[Advt.]

Mr. Lennox Browne's lecture on "Science and Singing," delivered before the Society for the Encouragement of the Fine Arts, is to be published immediately, in an amplified form, by Messrs. Chappell, under whose auspices the same author's "Medical Hints" had such a wide circulation.

"Just keep your bottle of whisky in your closet, and when the girl brings your hot shaving-water in the morning, you can mix your toddy quickly, and not a soul will know a thing about it," said the M.D. The plan worked well until the old man's daughter thought he must be going insane, because he wanted to shave five or six times a day.

Earth Worms.—A letter in a recent number of *Nature*, from Dr. Henry F. Walker, of New York, gives reasons for assuming that earth worms are the invariable companions of man, and are never found in regions where he has not settled. Dr. Walker states that it is well known to settlers on virgin soil in the United States, that no earth worms are found on the first tillage of the ground. Even in the natural meadows, called "beaver meadows," no earth worms are at first seen. After settlement they are first found in the vicinity of the stable-yard, then in portions of soil enriched by stable manure, and at length appear in all soils, whether cultivated or simply pastured by domesticated animals. Frontier settlers at Mukoka, in the Dominion, which is wild land unsurveyed for settlement, have told Dr. Walker that until a place has been inhabited by man for five years, it is useless to look for the earth worm.

Mirth as a Medicine.—Mirth has an hygienic value that can be hardly overrated while our social life remains what the slavery of vices and dogmas has made it. Joy has been called the sunshine of the heart, yet the same sun that calls forth the flowers of a plant is also needed to expand its leaves and ripen its fruits; and without the stimulus of exhilarating pastimes perfect bodily health is as impossible as moral and mental vigour. And, as sure as a succession of uniform crops will exhaust the best soil, the daily repetition of a monotonous occupation will wear out the best man. Body and mind require an occasional change of employment, or else a liberal supply of fertilising recreations, and this requirement is a factor whose omission often foils the arithmetic of our political economists. To the creatures of the wilderness affliction comes generally in the form of impending danger—famine or persistent persecution; and under such circumstances the modifications of the vital process seem to operate against its long continuance; well-wishing nature sees her purpose defeated, and the vital energy flags, the sap of life runs to seed. On the same principle an existence of joyless drudgery seems to drain the springs of health, even at an age when they can draw upon the largest inner resources; hope, too, often baffled, at last withdraws her aid; the tongue may be attuned to canting hymns of consolation, but the heart cannot be deceived, and with its sinking pulse the strength of life ebbs away. Nine-tenths of our city children are literally starving for lack of recreation; not the means of life, but its object, civilisation has defauded them of; they feel a want which bread only can aggravate, for only hunger helps them to forget the misery of *ennui*. Their pallor is the sallow hue of a cellar-plant; they would be healthier if they were happier. I would undertake to cure a sickly child with fun and rye-bread sooner than with tidbits and tedium.

SIMPLE TESTS FOR THE PURITY OF WATER.

In suspected drinking water for persons who cannot command chemical analysis, the following tests are recommended as being generally available and reliable :—

Colour.—Fill a bottle made of colourless glass with the water ; look through the water at some black object ; the water should appear perfectly colourless and free from suspended matter. A muddy or turbid appearance indicates the presence of soluble organic matter, or of soluble matter in suspension. It should be "clear as crystal."

Odour.—Empty out some of the water, leaving the bottle half full ; cork up the bottle and place it for a few hours in a warm place ; shake up the water, remove the cork and critically smell the air contained in the bottle. If it has any smell, and especially if the odour is in the least repulsive, the water should be rejected for domestic use. By heating the water to boiling, an odour is evolved sometimes that otherwise does not appear.

Taste.—Water fresh from the well is usually tasteless, even though it may contain a large amount of putrescible organic matter. Water for domestic use should be perfectly tasteless, and remain so even after it has been warmed, since warming often develops a taste in water which is tasteless when cold. If the water, at any time, has a repulsive or even disagreeable taste, it should be rejected.

Heisch's Test for Sewage Contamination.—The delicacy of the sense of smell or taste varies greatly in different individuals ; one person may fail to detect the foul contamination of a given water, which would be very evident to a person of a finer organisation. But if the cause of a bad smell or taste exists in the water, the injurious effect on health will remain the same, whether recognised or not. Moreover, some water of very dangerous quality will fail to give any indication by smell or taste. For these reasons sanitarians attach special importance to Heisch's test for sewage contamination or the presence of putrescible organic matter. The test is so simple that any one can use it. Fill a clean pint bottle three-fourths full of the water to be tested, and dissolve in the water a teaspoonful of the purest sugar—loaf or granulated sugar will answer—cork the bottle and place it in a warm place for two days. If in twenty-four to forty-eight hours the water becomes cloudy or muddy, it is unfit for domestic use. If it remains perfectly clear it is probably safe to use.

A Bill has been introduced into the New York Assembly, says the *Sanitary Engineer* of New York, to compel stamping on canned goods the date on which they were put up, and preventing the sale of goods more than a year old.

The effect of unsanitary influences inside the house has been shown in repeated instances. In several cases where everything was apparently right, a careful search revealed very serious defects. Lead soil-pipes are sources of constant danger—one day to all appearance perfectly sound, the next large rents from corrosions appear or else the seams separate. It must be remembered that air from drains that has been in contact with putrescing organic matter is by far more dangerous when mingled with the atmosphere of the house than with the air of the street. With the present lack of proper ventilation the impurities are confined in the house, where there is seldom a complete change of the whole atmosphere of the room, with all the advantage given by cracks and crevices, so that the air is proportionately much more contaminated, and sooner or later the disease-germs find their way into the system.

Recreation and Health

"Health is the vital principle of bliss,
And Exercise of health."—*Thomson.*

CALISTHENICS, OR LESSONS IN PHYSICAL EDUCATION.

By H. C. Standage.

NINTH PAPER.—DUMB-BELL EXERCISES.

"Do you know, Charles, we are beginning to feel quite ashamed of ourselves when at dinner."

"Why ?"

"Because we feel so hungry since we've taken these exercises, and we have such appetites ! But we are afraid to eat too much ; I know you and Cousin Jack were quizzing our eating yesterday."

"Nonsense ! I was observing, when looking at you, what a lovely complexion your cheeks are gaining since you have been under my tuition ; if you were not my sister, I really believe I should fall in love with you !"

"Now, Charlie, don't be absurd ; but what are we to do ? We never seem satisfied, even when we have finished our meal, but it looks so bad for girls to eat heartily like some ploughboy."

"Fiddlesticks ! Anne, when we are only *en famille*, you eat to within a point or two of satisfying your appetite. One doctor has said you should always leave off when you feel you could eat a little more ; that is the point to leave off at. When, however, we have a few friends to lunch or dinner, you had better have a light meal just previously.

"But, Charlie, we shall grow enormously stout, if we eat so heartily—think of that."

"Not if you continue your calisthenic exercises until your flesh has become of a healthy, solid nature ; grossness in growth is chiefly due to indolence and non-exertion. The fact that you have an appetite is a sign that the exercises are doing you good. You are gaining the greatest nourishment from the food you eat."

"Well, Charlie, I trust to you. We do not want to grow stout nor become muscular. I detest bony, muscular women. What is our lesson for to-day ?"

"Dumb-bells, I intended ; but as you will require to go through a few movements preparatory to using them, I have thought it best to defer the practice until to-morrow, when I expect the bells will be here. I have ordered a dozen pairs of various weights and sizes, and, as you do not want to become 'muscular,' I have had them made in wood instead of iron."

"How will the difference of material affect our muscular growth ?"

"In this way :—The bell part should be moderately large—about 4 in. wide—and to have them that width in iron would necessitate a weight of 8 lb. or 10 lb., and such would not only be too heavy to learn with, since they would overstrain your powers, but would likewise engender muscle and sinew instead of merely exercising the blood circulation—throwing off effete particles and creating new."

"What weight, then, do we require ?"

"About four pounds' weight for each bell, but for those of your friends who are only thirteen or fourteen years of age, a pair of dumb-bells weighing six pounds the pair will be quite heavy enough ; and, in choosing a pair, select those that can be easily grasped by the hand. The handle should be a trifle longer than the width of the hand."

"The girls are not quite ready, Charles; so, while waiting, tell me what purpose in the animal economy will be served by the exercises we are about to practise."

"In the first place, the exercises that are performed by the arms alone will give a supple wrist, strengthen the fore and upper arm, render the shoulder joints flexible, brace back the shoulders, stiffen the ribs, deepen the chest, increase the growth and develope the bust, regulate the organs of breathing, give a graceful poise to the head and a full neck, and set back the shoulders, so that you will not unconsciously stoop."

"Not stoop! How, then, are we to pick up anything?"

"You misunderstand me, Anne. I do not mean you are to have your head and neck so stiffened that you are unable to turn it round, like some Masher with his 3-inch linen collar; neither do I mean you are never to bend your back; but, by preventing you stooping, I mean, after some lessons with the dumb-bells, you will not feel inclined to lean forward when sitting."

"Oh, Charlie, I don't, do I?"

"Well, not much at present; but I noticed the other morning when you were late for breakfast, and came down in your morning wraps, you seemed quite round-shouldered, and your chest seemed to sink in."

"You are jesting, surely, Charlie!"

"Not at all. I fancied you had forgotten your corset."

"So I had; but would that make a difference?"

"Decidedly, when you wear that or any other artificial aid to imprison yourself in. You are so braced up—stiffened by the bones and tied in by the laces—that you are unable to lean, bend, stoop, or even breath properly."

"But how will dumb-bells correct all those errors?"

"You shall see when we begin our lessons."

(*To be continued.*)

Removing Stains from Cotton or Linen Goods, Curtains, &c.—Grease spots are best removed by soap; stains from oil colours, as a rule, do not resist the action of a mixture of soap and caustic potash. If spots of tar or axle grease are unaffected by soap, they will usually yield to the solvent action of benzine (so-called), ordinary ether, or of butter, which may afterwards be removed with soap and water. For ink stains, dilute hydrochloric acid, which must subsequently be carefully washed out, will generally be found effectual. For the same purpose oxalic acid or salts of sorrel (hydrogen potassium oxalate) may also be employed, and that most economically, in fine powder to be sprinkled over the stains and moistened with boiling water. The action of these solvents may be hastened by gently rubbing, or, still better, by placing the stained portion of the fabric in contact with metallic tin. If there is much iron rust to be removed, dyer's tin salt (stannous chloride) will perform the work at less expense than the oxalic acid compound. Another solvent for such stains consists of a mixture of two parts argol with one part powdered alum. Bilberry stains usually yields to the stains of burning sulphur. Stains caused by red wine, white wine, and fruit juices in general are treated successfully with salts of sorrel or with solution of hypochlorite of soda. The latter especially must be carefully removed when the ends have been attained. Another well-tried plan, when space is available, is to spread the stained fabric on the ground in the open air, smear the spots with soap, and sprinkle ground potash or common salt upon them. Water is added and replaced when lost by evaporation. After two or three hours' exposure the whole fabric may be washed, and will be usually freed from its stains.—*Industrial Record.*

Jottings from the Journals

"Th' ingredients of health and long life are
Great temperance, open air,
Easy labour, littl· care."—*Sir Philip Sidney.*

Gymnastics for Girls.—Dr. John Holm writes as follows to the *Lancet*:—"As a member of the profession who has devoted many years to the practical application of gymnastics, both medical and educational, will you allow me space for a few remarks on this subject. The whole question whether gymnastic exercises are good or bad depends upon whether the system practised is a sound one or the reverse, and, further, whether it be properly applied to meet individual exigencies. This stands quite apart from sex, for as much harm can be done to the male as to the female by ill-advised or excessive exercises. The practice of gymnastics has been left too much in the hands of those unacquainted with the structure and functions of the body, hence the evils which have arisen; and instead of harmonious development being the sole object, as it should be, of the gymnast, this or that exercise is given without definite aim, and often for the sake of mere display. Exercises should be directed to the equal development of all parts of the body, and kept within the compass of the vital power of the individual. If, on the contrary, certain sets of muscles are brought into play, either solely, or in excess to the exclusion of others, the proper balance is not maintained. Certain parts are made unnecessarily strong at the expense of others neglected, and when, added to this, the exercises are in excess of strength, undue strain is placed upon the heart and lungs. In this way nutrition, instead of being increased, becomes distributed unequally, and when the evil passes beyond a given point, even serious disease of internal organs may be caused. The exercises one sees ordinarily in vogue are much too exclusively directed to act on the flexors of the trunk and on the muscles of the arms, including the pectorals and the capsular muscles of the shoulder. On the other hand, the trapezii, rhomboidei, and extensors of the spine, except so far as they are used indirectly or in climbing, are too much neglected, their more important physiological function of keeping the spine erect and the scapulæ drawn well backwards being almost overlooked. The respiratory muscles also are hardly ever called into play except by indirect action, and the legs are but seldom exercised sufficiently. It is from these points being overlooked that harm is so often done, especially to the weakly, by unscientific gymnastics; but if these errors are avoided and harmony of development alone kept in view, gymnastic exercises can only be productive of good, giving increased strength, suppleness, and better carriage. A more equal distribution of vascular and nerve force is also induced with greater respiratory power, setting up a generally healthier functional condition of the whole body. While a sound system of physical education is in the highest degree desirable for both sexes, the want is not so urgent in the male as in the female, owing to the greater activity of the sports and occupations of the former. The feeble condition of circulation so commonly existing in girls and women, and manifested in their cold hands and feet, is, in the majority of cases, entirely remediable by a little judicious exercise, and thus an important factor in the production of disease may be removed. The conditions I have indicated as necessary to rational gymnastics are fully found in Ling's Swedish system, which is so well devised that, while the exercises are equal to the needs of

the strongest, they are so exactly graduated as to be fully suitable to those who are weak."

* * *

Health of Servants.—Every practitioner must have remarked the commonness of a certain type among the patients who come to consult him from the ranks of domestic service. We have chiefly in our eye female servants, for these especially exhibit the condition to be considered, though men and boys also, sooner or later, suffer in a similar way. The fagged and irritable heart, the watery but spastic pulse, atonic dyspepsia, and *malaise*, even apart from the evidence of a pasty skin and history of hard house-work, suffice for the diagnosis of anæmia. It is very common to find that the subjects of this condition have but recently come up from the country. They have exchanged the fresh air, regular hours of work and rest, and plain, wholesome fare of their former homes or service, for the late work, the early waking, and the small, unventilated sleeping-room of a city mansion. The relation between cause and effect is obvious. Hygiene is ignored, and health suffers. What, then, is to be done? It is easy to point to the evil, but more difficult to devise its cure. We are convinced, however, that much could be accomplished by a reasonable exercise of common sense on the part both of masters and servants. More space, air, and sleep are required. By means of these the frame will be rendered fitter to meet and overcome the generally moderate fatigue of domestic service. With regard to air-space in servants' bedrooms, it should not be very difficult to allot a minimum of 800 cubic feet per individual. Less than this must lead to impairment of health. Ventilation can, as a rule, be maintained even in our capricious climate, if servants can be taught that the window may be kept slightly open at the top without danger from cold. A room without free communication with the outer air readily becomes impure, and is unfit for habitation; a window is a necessity. Seven hours of sleep for men, and eight for women, are generally admitted to be no more than essential, and might, with but very moderate forethought, be allowed by masters and mistresses to their domestics. We have not spoken of recreation. It is often difficult alike for servants and for comparatively independent persons to make due provision for this important factor of health. Something has, no doubt, been done by timely holidays. Measures like these which we have suggested must, if adopted, help and not hinder work, and must increase the well-being and just contentment of that large class on which every other class is, in so great a measure, dependent.—*British Medical Journal.*

* * *

Important to Swimmers.—Why will bathers in shallow baths try to dive? Surely it must be obvious to the most unreflecting mind that no man can measure his distance in plunging so accurately as to do away with the risk of striking the bottom. The buoyancy or resistance of the water is not great, and its depth is not to be judged by appearance as seen from the surface. Too much allowance is made for the effect of refraction. Plunging and diving ought to be wholly interdicted. The managers of baths render themselves responsible for the accidents that occur by providing boards for the very purpose of diving when the act cannot be performed without danger. This is a matter that should have attention. Of course these remarks do not apply to the case of blind or nearly blind men diving. Obviously such a perilous proceeding ought never to be permitted. Our observations are based on the danger which prevails in connection with a large proportion of swimming-baths throughout the country.—*Lancet.*

Our Bookshelf

"Reading maketh a full man."—*Bacon.*

Medical Guide to the Mineral Waters of France, and its Winter Stations. By A. Vintras, M.D., Senior Physician to the French Hospital in London. (London: J. & A. Churchill.)

Few things are more perplexing at times to a medical man than the selection of a suitable mineral water resort for his patients. It may be that he understands thoroughly the maladies from which they are suffering—has estimated, as it were, their complaint to a nicety, and therefore fully recognises the effects that it is desirable to produce; and yet, for all that, he finds it no easy matter, when his opinion is asked, to fix upon the exact place that is best adapted to bring about these results. And this hesitation on his part arises, in many cases, from a want of information on the subject. With most of the home stations celebrated for their mineral springs, such as Harrogate, Buxton, Bath, and the like, he is probably well acquainted, but it not unfrequently happens that of the Continental resorts he knows little or nothing. Moreover, in his selection he has to be guided not only by the medicinal properties of the mineral water pure and simple but by a variety of other considerations, apparently trivial enough in themselves, but which concern the invalid very nearly; such, for instance, as the climate and altitude of the place, its accessibility from home, the social life, whether it be gay and exhilarating, or quiet and soothing, and so on. To such a man Dr. Vintras' book comes as a perfect boon; it tells him everything he requires to know in comparatively few words, considering the distance of ground covered, and while treating the chemical composition of the mineral waters, and their therapeutical use, as of the first importance, does not altogether lose sight of the other points to which we have alluded. Dr. Vintras, throughout, confines himself very closely to the idea with which he started—to convey to the busy practitioner useful and concise information on the subject of the chief French thermal resorts; indeed, after a careful perusal of his book, we can only call to mind one instance in which he slightly diverges from his object, and appeals, so to speak, to the general reader—namely, where, in writing of the establishment of "La Raillière," the most frequented mineral spring at Canterets, he tells us that in connection with the place there is a legend which relates that the efficacy of the water was first pointed out to some shepherds by an emaciated cow, whom they observed habitually drinking at the stream, and gradually becoming plump and healthy again. This, then, is the solitary instance, so far as we are aware, of Dr. Vintras allowing himself a moment's relaxation from his work; and we mention the fact to show how earnest and practical he is.

Within the limits of a short article like the present—short, not from want of interest in the subject, but from considerations of space—it is plain that we cannot deal very exhaustively with the book. But some idea of its general arrangement, with a few facts derived from its pages on one of the principal stations mentioned, as a sample of the serviceable information afforded, we may at any rate afford.

Dr. Vintras divides his work into three parts. The first is an introduction, in which he writes of mineral waters collectively, their definition, origin, temperature, chemical composition, therapeutic action, classification, and modes of administration, by baths, douches, in-

halations, &c.; the second treats of the subject proper, namely, the chief thermal resorts of France; and the third, or concluding portion, takes the shape of a few words of advice addressed to invalids about to seek the benefit of these resorts. To our thinking, this latter portion, though very short, is the most unimportant in the book, for Dr. Vintras, as we have pointed out, addresses himself to the medical profession (*vide* preface), and has fashioned his style accordingly, so that he is likely to have few other readers, either invalided or in perfect health; and surely medical men do not want to be informed, when they send their patients from home, that they should advise them to take a thermometer, a small aneroid barometer, a pocket compass, a spirit lamp, and an apparatus for boiling water, with them. It certainly may give an appearance of greater completeness to the book, but that is all.

Turning now to the Thermal Resorts themselves, which Dr. Vintras has arranged in six divisions, according to their geographical position—Central Division, Pyrenean Division, and so on—the first place he mentions is Royat, a village in the neighbourhood of Clermont (Puy-de-Dôme), with a population numbering some five hundred souls. Royat is one of the most important Thermal stations in France, and possesses an establishment that, whether for picturesqueness of position or completeness of accommodation, has scarcely a superior. There are no fewer than ninety four bath-rooms in it, each with its own apparatus for local douching, &c.; and it has besides independent apparati for douches of various forms, two inhaling-rooms, a large public swimming-bath traversed by a current of fresh water, arrangements for carbonic-acid baths and douches, as well as for the water-cure system, and lastly —a most important fact — a gymnasium. There are four mineral springs at Royat, the temperature of which varies from 96° Fahr. to 68° Fahr., and the water of all is clear and colourless, with no odour to speak of, having a sharp flavour something like ink, and an alkaline after-taste. The chief chemical constituents are the bi-carbonates of soda, lime, and magnesia, together with chloride of sodium, and bi-carbonate of iron with traces of arsenic. The waters in their effects are stimulating, diuretic, laxative, tonic, and restorative, and they are especially useful in, firstly, affections of the respiratory passages (administered chiefly in the form of inhalations)—laryngitis and chronic bronchitis, pulmonary catarrh, and certain forms of asthma; secondly, nervous affections—dyspepsia (whether of the stomach or intestines) and its originating causes; and, thirdly, cutaneous affections—the manifestations of arthritis, gout, rheumatism, eczema, and so on. Indeed, the latter complaint alone contributes no less than four-fifths of the cutaneous cases treated at Royat. It is, however, in the treatment of gout that the Royat waters have of late attracted the most attention, and every year a large number of patients afflicted with this disease find their way to its springs. This arises from the presence in the water of lithine (chloride of lithium), a substance which possesses the power in a marked degree of counteracting the excess of uric acid that is generated in the system of persons suffering from gout, and of destroying the products which it deposits round the joints. As a rule, it is in the more advanced forms of this disease that the Royat waters are most beneficial.

Connected with the thermal establishment, there is also one for hydropathic treatment, consisting of two corresponding sections, the one for men the other for women, each being supplied with every modern appliance and convenience, and the whole surrounded by tastefully laid out gardens. The patient may, in addition to the cold-water treatment, have "Scotch," Tivoli, and mineral baths, either cold or graduated, in the same establishment, and he can also indulge in a Russian bath if he have a mind to. Lastly, not only is Royat an extremely interesting place itself, but the neighbourhood round about is equally beautiful; and to those people who are unable to visit it, either in consequence of the distance or from want of means, it may be interesting to know that the waters can safely be exported, without fear of deterioration in quality.

Such, then, are a few of the facts, given almost in his own words, that are supplied us by Dr. Vintras in regard to this fashionable French resort; and from them the reader can judge of the way in which he has treated the other thermal stations. For ourselves, we can say that we have rarely met with a book that has afforded us more practical information, and at the same time been, from its clearness and conciseness, more interesting reading.

Packing-house Wounds.—Under the above title Dr. Axford, of Chicago, in a recent number of the *Physician and Surgeon*, calls attention to the bad consequences which often follow slight wounds from the sharp knives used in the great pork-packing establishments in that city. As a rule clean-cut wounds made by a sharp instrument heal readily by first intention—that is, without suppuration, fever, or much inflammation; but the wounds made by the packers' knives, which are almost invariably on the hand or forearm, do not heal in this manner, and, if of sufficient depth to divide the skin and injure the cellular tissue beneath, are often followed by spreading inflammation and suppuration. The cause is probably the action of minute organisms conveyed into the wound by the knives, which are rarely cleaned with care, and never disinfected. The worst consequences result from wounds made by the knives used by the "shavers"—that is, those employed in removing the finer hair from the bodies of the animals after they have passed through the scraping machines. Dr. Axford confines his remarks to the treatment of such wounds, and makes no suggestions as to efforts of prevention. If the cause of the peculiar results of these wounds is septic material on the knife due to want of cleanliness, it would seem that some simple precautions, such as leaving the knives in a disinfectant solution, would be useful. If, however, the poison is derived from the skins of the animals just killed, so that the knife is receiving fresh accessions of virus whenever it is used, such attempts at disinfection would be useless.—*Sanitary Engineer.*

International Health Exhibition.

LONDON, 1884.

NINTH PAPER.

MEMORANDA FOR THE GUIDANCE OF EXHIBITORS,

Drawn up by the Sub-Committees and approved by the Executive Council.

Heating, Lighting, Ventilating, and Smoke Abatement of the Dwelling-house.

The portion of Group 3, the Dwelling, with which this Committee deal is that comprised within Classes 24, 25, and 26.

In Class 24 will be included Methods of Warming:—(1) by open and closed grates and stoves; (2) by water, air, steam, and gas apparatus, designed to *heat only*; (3) by similar appliances, but combining provision for ventilation and the heating of more than one apartment; (4) by similar appliances for domestic use, specially

designed for the economical consumption of fuel, and intended to minimise the production of smoke or other noxious products of combustion.

Domestic Kitcheners will be included in this class, but appliances for cookery on a large scale will more properly be arranged under Class 6 (Cookery, &c.).

Furnaces and steam boilers for manufacturing operations are not considered to be within the scope of the present Exhibition.

In Class 25 will be included special appliances for ventilation, other than those which may be considered more suitable for Class 24. These will include means for cooling the air supplied to rooms; means for improving the condition of the air in rooms; methods for testing air; the results of experimental researches into the state of air vitiated by combustion or by respiration; results of experiments on ventilation, and any other means of effecting improvement in matters relating to this class or of diffusing knowledge about them.

The official classification sufficiently indicates the class of exhibits which are desired for Class 26. It may be added that electric lighting is to be limited to illustrations of its application to domestic lighting. Its use on a large scale will be practically illustrated by the arrangements made for lighting the Exhibition itself. In the same way, the commercial manufacture of gas is not included, though its production on a small scale for private use is. Exhibits showing the progress of domestic lighting, and affording means of comparison between old and new systems are specially desired. Photometric and other tests for illuminating materials may be added to the list contained in the classification, and it is desirable that methods of gas lighting, which either assist, or do not interfere with, the ventilation, should be shown.

School and Education.

The classification of these two groups—4, the School; and 6, Educational Works and Appliances—is given on pages 13, 14.

It will be seen that in Group 4 are comprised all the exhibits relating to school construction, to the improvement of the sanitary condition of school buildings, and to means for promoting the health of the scholars by physical exercises and otherwise.

The classification sufficiently shows the character of the exhibits the Committee would wish to see provided. They would, however, lay special stress on those included in Class 39, and relating to physical education. They would be glad to see included as many models as may be convenient of typical elementary schools, and they would appeal for this purpose to school authorities and managers in this and other countries, and to architects who have given special attention to school construction, for the loan of such models, as well as of plans and diagrams. The admission of the latter, however, must be to a certain extent limited by considerations of space.

As regards Class 40 of this group—and the same remark will apply to Class 55 in Group 6—the committee are anxious that this class should be limited, with a view to preventing the Exhibition being overburdened with literature. Books stowed away in glazed cases, the backs only being visible, as is the usual custom in exhibition, are of little practical value or interest; and if available for examination a constant watch is necessary.

Group 6—which forms the second division of the Exhibition within the province of this Committee—relates entirely to educational works and appliances, these being restricted to such, in the first instance, as attach to primary schools, and secondly, to scientific, artistic, and technical education in secondary and higher grade schools, it being understood that Class 49 comprises what may be considered as technical education for women. Regarding this group it will be noted that in every class where they can come in, examples or specimens of school work are included. In the case of primary and infant schools the Committee would be glad to see this part of the Exhibition strictly limited to what is important or characteristic, and the same remark to a great extent applies to Class 49.

The Committee would wish to arrange for as large a display of maps and diagrams as the wall space available will permit.

Of the specimens of work of a handicraft or technical character, the Committee would be glad to see as full a collection as possible, especially of the higher class of work done in certain foreign schools.

The Committee do not consider it at all necessary that extensive collections of apparatus and fittings for infant and elementary schools in use in this country should be shown, especially when it is remembered that the educational collection of the South Kensington Museum is in the close neighbourhood of the Exhibition.

Among other points, on the importance of which the Committee would lay stress, may be mentioned the artistic decoration of schoolrooms, the exhibition of works of art suitable for use in schools, and the exhibition of objects suitable for school museums, or possibly of a typical school museum.

As regards the instruction of the blind and of the deaf and dumb—as in all other departments—the Committee would like the various systems to be fully represented, and it should be understand that no preference would be given to one system above another on account of any individual views which members of the Committee might entertain.

It will be noticed that in Class 55 are included the effects of cramming and overwork on the young. The Committee understand that this subject is mentioned in the classification merely in order that it might be included amongst the subjects for Conferences, and they do not understand that any exhibits intended to illustrate it will be sought for.

As regards collective displays (Class 56) the Committee will endeavour to organise displays of this character, which are likely to have a higher educational value than the exhibition of separate articles.

Sanitary Appliances, Etc.

MELLIN'S FOOD FOR INFANTS AND INVALIDS.

We have had submitted to careful examination, a sample of Mellin's "Food," and the result of the analysis goes to show that this well-known article thoroughly merits the extensive patronage it has received. This food differs from other articles bearing similar or analogous titles, in that it is not a farinaceous article, and contains none of those ingredients which, consisting of crude starch, are absolutely unfitted for the digestion of infants of tender age. The young infant has little or no starch-digesting power, and the high rate of mortality attending children under a year old is largely due to the practice of using food-stuffs which contain starch, and which produce ailments of which the well-known and fatal "infantile diarrhœa" is the chief.

Mellin's Food consists of materials which, as combined in this preparation, are eminently fitted for the easy digestion or young children and invalids like. In one sense it may be described as nearly resembling milk in composition. The nitrogenous or flesh-forming matters, so largely represented in milk, are contained in this food in a high degree, while the food being "well malted" in addition, is thus additionally fitted for easy digestion. We incline to believe that the high excellence of this "food" consists as much in its ready digestibility as in its accurate chemical preparation. Children fed upon it do not suffer from those acid eructations and gripings which are only too commonly seen in infants brought up by hand. Combined with milk it forms a highly nutritive combination, and for invalids in this shape it may be recommended.

Altogether, we believe that no article at present in the market of the nature of "infant foods" has a higher value than "Mellin's." Not the least important of its good qualities is found in the fact that infants take to it readily, and appear thoroughly to enjoy it, when previously other foods have been rejected.

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This elegant preparation is one which should be far more widely known and used than at present. Its high utility for an infinite variety of household uses and for the relief of a number of common affections, should make it an indispensable item in the domestic medicine-chest. "Hazeline" is distilled from the bark of the *Hamamelis*, or "Witch-hazel-tree" of America. It is colourless, possesses a pungent odour, and a sweetish taste. Being non-poisonous, it may be used with safety; and, whether as a lotion for various affections or as an internal remedy, its value is very great. Recently we have had reason to see its effect as an astringent, used for the purpose of checking discharges of various kinds. Used diluted to three times its bulk with tepid water, it forms an admirable lotion for inflamed eyes, or in cases of obstinate internal discharges.

In internal bleedings of all kinds, as well as for the relief and cure of piles, "Hazeline" is of the utmost service. To our correspondents the tincture of hamamelis (which is derived from the same source as "Hazeline") has frequently been recommended for the latter affection. In future, "Hazeline" itself may be recommended, as possessing more active properties than the tincture in question. The testimony of the medical journals to the efficiency of "Hazeline" has been of unanimous character, and as an application to indolent sores, to bruises, insect-stings, and like injuries, this fluid is of the highest value. It should supersede arnica in such cases. We have also pleasure in adding that under the application of "Hazeline"—simply applied on cotton-wool or lint to the part—several cases of somewhat irritating and intractable skin-eruptions have completely disappeared.

Our Letter : Box

"Conference [maketh] a ready man."—*Bacon.*

QUERIES AND ANSWERS.

[Important to Correspondents.—We have again to call attention to the fact that, while every effort is made week by week to deal with the enormous mass of correspondence which reaches us, we cannot undertake to answer queries save as space permits. All queries are attentively considered and replied to, but in no case can any query be answered in the same week as that in which it is received.]

[A number of replies have been crowded out of the present number owing to pressure in space. These replies will be duly given next week.]

GENERAL.

Interested.—Apply to Messrs. Fairbank, 108, Upper Thames-street, London. Theirs is a weighing-machine likely to be suitable for your institution.

Civis.—You have no legal remedy.

B. A.—Thanks for your letter and case. Always delighted to hear of the "biter bit," when the "biter" is a quack.

Cordelia.—See reply to "Civis" above.

Impatiens.—Yes; there are thirty-one pairs of spinal nerves, arising, that is, from the spinal cord. These nerves supply the body generally with sensation and stimulus to movement. They are made up of double fibres—*sensory* and *motor*, which convey incoming and outgoing messages or impulses, respectively.

Bessie G.—Your teacher was quite right in saying the spleen is a "blood gland." It has to do with the elaboration of the blood elements, and is probably a manufactory of blood-corpuscles, especially red ones.

Albert.—See article on "Disease and Human Transformations," No. 53, for explanation of *thyroid gland* of the neck. Its use is unknown.

Jane Crowder.—We have never heard of the form.

G. O. A.—Apply to the steamship company in question.

SANITARY.

Gargle.—1. Sanitas and chloralum. 2. Carbolic acid (pure). 3. Boracic acid.

Anxious Householder.—1. Have the flooring taken up. 2. The old pan-closets are always liable to give rise to smell.

J. Bull.—1. About 20 per cent., we believe. 2. Not, so far as we know.

Oxygen.—Messrs. Krohne & Sesemann, 8, Duke-street, Manchester-square, manufacture a very handy Siphon Douche, which acts by gravity.

Inspector G.—Yes; action could be taken under the clause you name. There are many precedents.

C. Ogilvie.—The disease is commonly found to be imported in rags.

MEDICAL.

Naomi.—We do not know the treatise you name, but from the reputation its author had we should imagine it is nothing more or less than a quack treatise, containing no information likely to be of service to any respectable person. You might consult any of Dr. Pye Chavasse's books, published by Churchill.

Cannisburn.—You are needlessly alarmed. What you note is of little or no importance. Simply look to your general health, use cold sponging each morning, and avoid stimulants of all kinds. The injection recommended to "Berbice" in No. 52 Health may also do good.

R. D. J.—1. A very simple operation (by tying a ligature, probably) will remove the "growth." Caustics or other agencies are of no avail. Any surgeon can perform the operation. 2. Pepsine may be left off when your digestion has improved. 3. No aperients should be used continuously. Try to discover which diet suits you best, and adhere to it. Eat fruits (stewed, &c.) and vegetables and avoid tea and coffee, cheese, and such foods.

P. M. I. N. B.—For tapeworn, first, on a given day, take no food (save, perhaps, a little beef tea or so) for eight hours; then at night take the draught given below. Next morning take a dose of castor oil, and at midday eat a hearty meal of mashed potatoes. The draught is as follows:—Liquid extract of male fern, thirty minims; powder gum acacia, one drachm; peppermint water, one ounce. Make an emulsion. You must see that the *head* and slender neck of the worm are discharged, otherwise it will grow again. A common error in treating tapeworm is the neglect of abstinence from food before taking the fern extract, and also the want of a purgative afterwards.

Widgeon.—1. No effect at all, we should say—if by inhaling "fumes" you mean simply sniffing at a piece of camphor. 2. Roller-skating is exercise of much more violent or active nature than walking. 3. We do not know of such a place; but will inquire.

R. Deronda.—Take the tonic an hour *before* food, and you will not find it to disagree with you, and take "Pepsine" after your dinner. We have no confidence in the "phosphorus" preparation you name.

James Thomson.—We really cannot undertake to look out your reply in Health and send you the number. Don't you think you could afford to subscribe to Health, seeing that you expect to derive advice and benefit from our pages? Any bookseller will supply you with Health. We are not aware of having advised you against hydropathic treatment, and your remark about your improvement in health being a fact "unacceptable" to us, simply shows that you are labouring under some delusion which we have not the time or patience to further investigate.

Helpless.—Don't be nervous. Avoid the quacks, whose pamphlets, as you remark, assail you in the streets. Use cold sponging each morning; avoid fluids late at night, sleep on a hard mattress, take moderate open-air exercise, avoid all stimulants, and take (for a time) a teasposnful of "Fellow's Syrup of the Hypophosphites," in a wineglassful of water, an hour before food, thrice daily.

Tinea.—Give the boy cod-liver oil to which syrup of iodide of iron (three drachms to six ounces of oil has been added. Poultice to remove all crusts, exercise thorough cleanliness, and then use sulphur*ous* (not sulphuric) acid as a lotion to the affected spots. If not better, write again. The disease will disappear only when the boy's general health has been thoroughly established. All the hairs around should be removed, as they tend to harbour the parasitic fungus that causes the disease.

Mechanic.—The idea that people require "Spring medicine" is only a popular delusion. See to your general health "all the year round." You do not state any symptoms, and we, therefore, conclude you only imagine you require physic. A little *Fer Bravais* (ten drops in water, thrice daily) might suit you, provided you feel simple lassitude.

Head Perspiration should firstly see to his general health. A little *Fer Bravais* (ten drops in water, thrice daily) would do good. The symptoms complained of are often due to a little general debility. The head might be washed with tepid water, to which a little boracic acid has been added. If not cured, write again.

Rustic.—1. No cure for sleeping with mouth open, save practising the opposite habit. No positive harm can accrue from an open mouth during sleep, although, no doubt, the nostrils are the proper breathing channels. 2. We know nothing of the person's practice or treatment. Personally, we do not approve of doctors who advertise. This practice is entirely opposed to all professional etiquette. If desired, we can send you address of a reliable physician, on receipt of stamped, addressed envelope.

L. E. Mack.—Try bathing with a lotion composed of sulphate of zinc (six grains) and rosewater (six ounces). Label, "For outward use only." A little of the lotion to be well diluted with water, and the eyes to be bathed night and morning therewith. If not better, write again.

Hesitation.—See reply to "Rustic," above, regarding advertising medical men. We may add that we have no faith in such preparations as that you mention. Try a teaspoonful of Fellows' "Syrup of the Hypophosphites" thrice daily (an hour before food) in a wineglassful of water. This tonic excels all others as a brain and nerve stimulant, and is daily prescribed by the faculty with immense advantage.

F. Gray.—Try, as a preliminary measure, hot salt water as an occasional application to the affected part; and, on alternate nights, rub into the part heated Vaseline. If this does not cure you let us hear from you again, after a fair trial of our advice. You would also probably find it advantageous to take the iron tonic recommended to "Head Perspiration" above.

Julius.—Epilepsy is a brain-disorder, the proper treatment of which necessitates the constant attendance and watchful care of a physician. Many remedies have been prescribed, but all demand the doctor's care and observation in their application. We can, if desired, send you a London physician's address on receipt of a stamped, directed envelope, and in offering to do so we think we are giving you the most appropriate advice at our command. All home or other treatment of epilepsy is worse than useless. If unable to afford a fee, apply for advice at the Hospital for Epilepsy and Paralysis, Portland-terrace, Regent's-park, London, N.W.

[*Continued on page* 32.

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Beta.—We do not preserve the letters of our correspondents, so kindly restate your inquiry.

C. S.—Don't be morbid or alarmed. Continue the cold water, and don't study too hard. Mental overwork is apt to induce the effects you complain of. You are in perfectly good health, and possibly a little more open-air exercise might benefit you. You must be cheerful, and the knowledge that you suffer from no disease should make you so.

T. Bradley.—You do not state any symptoms or details in your note. Send an account of your case, with full details.

Union.—Try the effect of sponging the spot you complain of with a little "Hazeline" morning and night, and avoid all irritation from clothes, &c. The suspensary bandage should have done you good, but you evidently suffer from enlargement of the veins. See a good surgeon regarding these latter, as they may be remedied. We fancy in your present stage you want a good tonic. Take for a time "Fellow's Syrup," as recommended to "Hesitation" in present number of Health, and let us hear how you are thereafter. The tonic will probably cure the symptoms of which you complain most at present. The back pains are probably muscular, and have nothing to do with the original disease.

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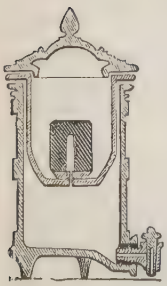

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HEALTH

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, APRIL* 25, 1884.

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Notes by the Way

"Health is the foundation of all our physical happiness."—*Herder*

Some highly practical information has been given us in the shape of a petition presented to the Privy Council, &c., by the Council of the National Association for the Promotion of Social Science. The information in question is worthy the reflection of the British householder. During the past twelve years, fifty-three epidemics of typhoid fever, seventeen of scarlet fever, and twelve of diphtheria, have been clearly traced to the drinking of infected milk. These epidemics killed nearly 600 persons, caused misery to thousands, and cost a large sum of money for medical attendance and other items incidental to the appearance of serious illness. After these plain statements, it is not surprising that Parliament should be asked to make the regular and systematic inspection of dairies a matter of strict and necessary detail. If we inspected our dairies as rigidly, say, as our public-houses, we should find less cause to mourn preventible deaths, and to regret the expense of preventible illness.

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In the United States, according to a recent calculation, there is one doctor to every 625 inhabitants. This, we believe, is the highest proportion found in any country. It may be added that within the past few years, the status of medical education in America has been greatly improved. When "American degrees" are scornfully alluded to on this side of the Atlantic, we should not forget that quackery is by no means extinct in our own land — the term "quack" including, of course, both professional and unqualified individuals.

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Recent information, supplied by the British Consul at Copenhagen, draws a very dreary picture of the spread of intemperance amongst the Danes. The amount of the drink-taxes levied in 1883 was 270,000 kroners, as against 120,000 kroners in 1880. The number of divorces obtained by wives on account of the drunkenness of husbands is also said to be on the increase; and between 1860 and 1880 the total number of places licensed to sell intoxicating drinks is stated to have risen from 21 to 51 per 1,000 inhabitants. These figures do not augur hopefully for the prosperity of the Danish kingdom.

Dr. Robinson, of Dover, has replied to the strictures of Dr. Parsons regarding the sore-throat epidemic at that town. The former, it will be remembered, contended that the epidemic had its origin in an infected milk-supply; the latter maintaining that the cases were to be attributed to tonsil-inflammation, associated with cold, and that probably an "atmospheric origin" was the true source of the disease. Dr. Robinson's remarks are so highly instructive that they will bear quotation here. We are of opinion that he has fully proved his case for the milk-origin of the epidemic as against the somewhat vague theory of Dr. Parsons.

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"Milch-cows, at a farm in the country," says Dr. Robinson, "were attacked with foot-and-mouth disease on or about January 14th. The milk from the cows was, during the last week in January, sent into Dover and mixed with other milk belonging to a certain dairyman, and thus delivered to his customers. On the four days, February 3rd, 4th, 5th, and 6th, 184 of this milkman's customers, and on the following three days 17 more, were attacked with a peculiar affection of the mouth and throat, the various symptoms of which I described, as also the sequelæ and complications which were so characteristic of blood-poisoning. But the remarkable coincidence in the outbreak was this: that the persons attacked were those supplied with milk by the implicated milkman. In 42 streets widely separated the persons attacked on the particular days referred to were those supplied by this dairyman; whilst other persons living in the same localities, supplied by other milkmen, escaped the malady. Surely here was displayed a common cause at work, far more specific and palpable than some vague speculation and unknown atmospheric condition. As corroborative evidence of the infective character of the milk, I may mention that samples taken for examination were found to present such characteristics as have been discovered in milk from cows suffering with aphthous fever."

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"Further, a dog to whom was given some of the milk suffered from an affection of the mouth and one foot, simulating the disease in cattle; and, if further proof were wanting, it might be adduced in the fact that a second simultaneous outbreak of cases occurred amongst the customers of another milkman, who had been supplied, a few days previously to the invasion, by milk from the infected farm. With such evidence of tainted milk and its effects, anyone desirous of being convinced, need not, I think, hesitate to accept the stern logic of facts."

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The Dover epidemic thus adds another to the long list of cases of milk-disease on which the contention that dairies should be placed under continual inspection is founded. Under a rigid system of supervision, milk from infected cows would never have been allowed to pass into Dover. Another point worthy of public attention is that which seems to press home the fact of cows suffering from "foot and mouth" disease being capable of conveying their taint to the human subject through the infected milk. The experiment on the dog is, in its way, also highly interesting; but we trust there are no anti-vivisection agitators at Dover, otherwise we should be prepared to hear a good deal of nonsense talked about the crime and cruelty of thus experimenting on a dog by way of discovering the nature and source of human maladies!

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We beg to recommend very warmly to the notice of parents and teachers a lecture (issued in pamphlet form by

Messrs. Longmans & Co.) on "School Hygiene," by Dr. Ralfe, of the London Hospital. The lecture, which was delivered at the Parkes Museum, teems with sound advice, such as all interested in the welfare of the young should not fail to "read, mark, learn, and inwardly digest." We hope to refer to Dr. Ralfe's lecture and its teachings at a future date.

* * *

A case of supreme interest to the public has been lately referred to in a medical contemporary. A Huddersfield gentleman suffered severely from lead-poisoning, the source of which was clearly traced to the lead service-pipe of his house. It seems that the Corporation of Huddersfield decided in their bye-laws that all such service-pipes shall be constructed of lead; and as the water supplied acted on the lead, dissolving so much of the metal into the fluid, the illness in question was readily explained. The patient, on recovery, decided to sue the Corporation for damages, laying the latter at £5,000. The case was first heard at Leeds Assizes in August, 1883. The defendants admitted the cause of the illness, but denied liability. The jury decided for the plaintiff—damages £2,000. The case, however, was transferred to London on a point of law—namely, the responsibility of the Corporation—judgment being given in London for the defendants.

* * *

The plaintiff and patient appealed against this decision; his case being upheld by the *Law Times* and by many able lawyers. In November last it came before the High Court of Appeal, which upheld the decision and laid the costs on the shoulders of the plaintiff. In this stage the case at present stands; but as the plaintiff has appealed to the House of Lords it will be instructive to note the effect of this final move in this case. On the face of things it seems only reasonable to expect that, if a corporation insists on the use of lead service-pipes, the quality of the water and the likelihood of its acting upon the pipes should be duly ascertained.

* * *

Dr. Neale, the inventor of the "chemical lung," has certainly a just cause of grievance against the authorities of the "International Health Exhibition." The latter have decided that the "lung" is "not an object which comes within the limits of their classification." Whilst we doubt the correctness of this statement in relation to the classification of exhibits we have published from week to week, we certainly entertain no doubt whatever that the "chemical lung" is a highly interesting and most appropriate object for exhibition in any collection of sanitary appliances. As an aid to health in renovating the atmosphere and in getting rid of deleterious air-products, Dr. Neale's invention is both interesting and important. It "destroys germs in a room without destroying the patient"—such are Dr. Neale's own words; and "it renders at the same time the air of a room, however foul, free of organic, as well as of inorganic, matters." Again, it is "the only means at present known by which the air of inhabited rooms can be really disinfected, and that independent of ventilation." There is surely some egregious error at the root of the refusal of the Exhibition authorities to allow Dr. Neale's "lung" a place within the Exhibition walls. We hope to hear of this somewhat anomalous decision being reconsidered. If filters for water are to be represented in the Exhibition, why should not filters for air also have a place in the collection? As regards "classification," Dr. Neale's "lung" could suitably be placed either under "ventilation" or "disinfecting appliances."

Original Essays

"Life is not to live, but to be well."—*Martial.*

THE INTERNATIONAL HEALTH EXHIBITION.

By Dr. Andrew Wilson.

The 8th of May, at noon, will witness the opening of the International Health Exhibition at London. The successor to the Fisheries Exhibition of 1883 may truly be said to deal with topics far exceeding in their actually vital importance the subjects which the last Exhibition was specially destined to bring under public notice. Doubtless, both "Health" and "Fisheries" are topics of paramount importance, but all things must give way to "Health," which, like the charity that never fails, exceeds all other subjects in respect of its forming at once the beginning and the end of enjoyable existence. It is earnestly to be hoped, in the first place, that the public will support the Health Exhibition at least as fully and as enthusiastically as they did the Fisheries show. Public support in the matter of the Health Exhibition means much more than the pecuniary success of the project. It means the fulfilment of the chief aim of the Exhibition. It implies the education of the people in those details of health-science on which depend the conditions that make for physical and mental welfare. The Exhibition, as we understand its aims, is to be something more than a mere show-place. There will be more than enough to excite wonder and curiosity, it is true; but the aims of the Exhibition, and of those who visit it, should strike a much higher key than that which would regard the great collection of sanitary appliances as a pleasant lounge, or as a place wherein curious details are to be gathered for the public amusement. The people at large—gentle and simple alike—are to be taught great and wholesome truths through their visits to the Health Exhibition. They are to see, for example, what has been, and still is being, done to preserve their homes against those mysterious visitants, in the shape of sewer-gas and disease-germs, which tend to destroy peace and comfort, and often to make life very hard and desolate for thousands amongst us. They are to be shown what can be done to make the "Englishman's home" his "castle" of domestic health, and a stronghold against preventible disease and early death. They are to be taught why pure water is a necessity of life, and how a pure water-supply may be obtained. They are to learn the value of pure air, both as a necessary condition of healthy life and as a preventive of disease. All these things, it may be said, are known of the people; but the sanitarian, in his turn, is only too well aware of the gross neglect of even the simplest laws of health which everywhere abounds. He knows that the most common details of health-science are as yet a mystery to many thousands; and he sees daily—all too plainly, alas!—what the Registrar-General's returns demonstrate periodically on paper, that thousands of lives are cut short from want of the saving knowledge which teaches where we are to look for health-conditions, and where to suspect the inroads of disease.

That which the Health Exhibition should, and will, accomplish, then, is the demonstration of the great truth that the laws of health are in reality founded on simple facts and details, and that health-education is, after all, anything but a complex matter. It was a wise thought which suggested that the two chief subdivisions of the Exhibition should be included under the names "Health" and "Edu-

cation." For it is the gravest of truisms that the royal road to "health" is a matter of "education," and that we can no more reasonably expect advance in sanitary science and in the art of living long and happily without due training thereon, than we can expect to master the technicalities of mathematics or philology without instruction in the details of either branch of inquiry.

To educate the people by means of eyes and ears in health-details, will be the aim of the Exhibition. In this sense, it will be a huge class-room full of "object-lessons" for the seeking eye and understanding mind. And what is seen in the building and its exhibits will be educationally supplemented by the instruction which is to be given, not only by lectures, but also by the handbooks on various health-subjects that are being prepared by men eminent in each department of health-science. There will be afforded every opportunity for the culture of a knowledge of health; and in this light, we may hold that the Exhibition has come not a moment too soon, if it may succeed in stimulating general inquiry into the causes of disease, the prevention of illness, and the laws which make for healthy living.

We have alluded to the opportunity which will be afforded the public of seeing all that is fresh, accurate, and new in the way of sanitary inventions and appliances. That much good will be the result of this species of education cannot be doubted. It is a plain fact that very few householders know much, or, indeed, anything, concerning the internal fittings of their houses. The public, as a rule, are ignorant of the veriest trifles wherein drains, closets, cisterns, and sinks, for example, are concerned. When anything occurs to interfere with the ordinary working of the household apparatus, the householder is completely at sea. It is only here and there that we meet with a layman who knows even where his house-cistern is situated, and whether or not the closet-supply of his house is derived from a cistern distinct from that which supplies the kitchen and general household requirements; while a still fewer number of householders know whether the cistern overflow is properly trapped and disconnected from the sewers, and whether or not his family are liable to have their drinking water impregnated with the matter which, under favouring circumstances, may give rise to typhoid fever or diphtheria in his midst. We do not exaggerate when we say that widespread ignorance regarding household and sanitary requirements prevails amongst all classes. We are dependent entirely on the plumber and the builder for rectification of sanitary abuses which ought, perchance, never to have existed. Doubtless it is necessary, so far, to depend on builders and plumbers for the due rectification of sanitary mishaps; and that there are conscientious, intelligent men to be found in these trades goes without saying. But, just as a man may, and should, possess some knowledge of anatomy and physiology and chemistry sufficient to guide him in his ordinary life, and without in any sense investing himself with the attributes of the physician or surgeon, so we hold, and hold strongly, that each intelligent householder should possess as much knowledge of ordinary household sanitation as would enable him to know when and where the plumber is required, and how the sanitary pitfalls that everywhere gape for us are best to be avoided by an appeal to the skill of the artisan. We may surely gain some little and profitable knowledge of traps, drains, and closets without qualifying for a place amongst technical workers in building trades.

It is in encouraging the acquirement of such knowledge, that the Health Exhibition will operate most beneficially. People will be able to *see* for themselves what can be done in the way of wholesome sanitation. They will be brought face to face with the details of household sanitary apparatus, and will be taught that if they desire to make their homes healthy, there is no lack of means at hand for effecting that end. The knowledge that the sanitary market is full of sensible and effective appliances, which can be brought into requisition for the trapping of drains, the prevention of sewage nuisance, and for allied purposes, should tend to make the public demand that builders should utilise such forms of apparatus in the construction of houses. It is at least something to know, that if we demand healthy houses we may at least obtain them; and the sights of the Exhibition will show us of what we may avail ourselves in the way of sanitary safety and of disease-prevention.

That the Health Exhibition should therefore prove a great educational institution cannot be doubted. It will more than serve its purpose if, even in a minor degree, it should teach us how to conserve what Emerson rightly calls the "first wealth"—namely, Health itself.

Without obedience to the laws of health, it is impossible to secure the highest culture of the citizen—physical, moral, and intellectual—and perpetuate the prosperity, freedom, and glory of the State.

The Coming Hotel.—The *American Architect* says:—The following is the translation of an article in a Berlin paper which will convey an idea of the German estimates of the coming American hotel:—"The latest American progress in building will be the 'mammoth hotel' soon to be erected in the Shell-road, St. Augustine, Fla. This enormous hotel is to have a frontage of three English miles long and a depth of six miles; the height of seventy-seven stories will measure 3,840 feet from the ground-floor to the roof. The hotel will have no stairs, but five hundred balloons will always be ready to take guests up to their rooms. No room-waiters are to be employed, but visitors will be served by a newly-patented automaton, put up in every bedroom, which will do all shaving shampooing, &c., for the guests by a very simple and ingenious mechanism. Supposing the guest requires hot water, the automaton will be able to call downstairs, 'A bucket of water for room No. 13,107,' and the water will be up in 7 secs. by a patented elevator. Half-an-hour before *table d'hôte*, instead of ringing bells, a gun (24-pounder) will be fired on each floor to call the guests to get ready for their meals. The tables in the dining-room will measure four miles each, attendance being performed by twelve waiters on horseback on either side of the table. Music during *table d'hôte* will be played, *gratis*, by eight bands of seventy-seven men each. For the convenience of visitors a railway will be built on each floor, as well as telegraph-offices. The price of one bedroom will be from 1 dol. to 10 dols. The cost of this building is estimated to be 680,000,000 dols. The billiard-room will contain nine hundred American, ninety-nine French, and one English table, and most of the visitors are expected to be Americans. The billiard-room will be fitted out with a spittoon of 100 ft. in circumference."

Scott's Midlothian Oat-Flour.—There is no preparation which can be assimilated with greater facility than such a flour as this. Those who suffer from indigestion might substitute for their ordinary breakfast materials this flour, prepared according to the recipe given by Messrs. Scott and printed on the tins.—Ed. Health.—[Advt.]

The "Boncontour" Stay-Belt and other Orthopædic Apparatus, made by K. R. Schramm, Orthopædic Mechanician, 64, Belmont-street, Chalk Farm-road, London, N.W.—[Advt.]

Personal Health

"Be timely wise;
With health all taste of pleasure flies."—*Gay.*

SMALL-POX AND VACCINATION.

By W. Dometт Stone, M.D., F.R.C.S.

We are threatened—in the opinion of the medical journals—with another epidemic extension of small-pox; it behoves us therefore at once to take steps to check the enemy, now, indeed, at our very doors. Vaccination, re-vaccination, and isolation would affect this. Such being the case, it may be asked, how is it that the mortality from this most preventable of all diseases (scurvy alone excepted) continues so high? The problem is not, I think, difficult to solve—it arises from the fact of the provisions of the Compulsory Vaccination Act not being rigidly enforced. The duty of applying the Acts rests principally with boards of guardians, who probably know better than any other community "how not to do it." As it is contended that rigid enforcement of the Act cannot be properly carried out with the present machinery, the Local Government Board should appoint more public vaccinators, who should be empowered to visit every house in their respective districts, and re-vaccinate all persons who have not the scars of former vaccinations well marked, as well as, of course, to vaccinate all who had not undergone this simple operation.

I will now proceed to give a few facts culled from various sources, the veracity of which cannot be impugned, as to the inestimable value of vaccination. It has been calculated that for a long time, no less than half-a-million lives were annually cut off in Europe by small-pox, and that one-fourth of the human race bore, in blindness or other forms of suffering or disfigurement, the traces of having been visited by this the greatest scourge which has ever afflicted our race. In Greenland, in 1734, it spread so fatally that nearly two-thirds of the inhabitants were destroyed. In Thibet, on one occasion of its visitation, the destruction was so great that the capital was deserted for three entire years. In Russia it is said to have cut off two millions of people in a single year; and at Constantinople it has in many inroads proved fatal to one-half of those affected. Dr. Lettsom calculated that 210,000 persons fell victims to it annually in Europe. Mr. Simon declares that its annual averages have been estimated at half-a-million of lives. M. de la Condamine reckons that in France a tenth of the deaths were by small-pox. Rosen's calculation for Sweden was similar. In England, according to Dr. Jurin, one-fourteenth of the average of deaths was from this pest, even when it was not raging epidemically. De la Condamine estimates that this disease maimed, blinded, or disfigured nearly a fourth part of mankind; and Sir Gilbert Blane, quoting a report of the Hospital for the Indigent Blind, states that two-thirds of those applying there for relief had lost their sight by small-pox. Bernouilli believed that not less than fifteen millions of human beings were deprived of life by it every twenty-five years; and it has been calculated that out of a population of one hundred and sixty millions, forty-five millions of lives fell victims to the disease, during one century in Europe alone. Mr. Simon has pointed out that a sad illustration of its impartial severity is to be found in the family of our own King William III. His father and mother fell victims to it, as did his wife, as well as his uncle, the Duke of Gloucester, and his cousins, the eldest son and youngest daughter of James II.

Such was the mortality before the general adoption of vaccination; the results since, or a few of the results, may be very briefly epitomised as follows:—As regards London, Mr. Simon states that the mortality from small-pox during the eighteenth century, which ranged from 3,000 to 5,000 per million of living population per annum, was during the years from 1846 to 1855 under 340. Dr. Lettsom in his evidence before the Parliamentary Committee of 1802, estimated the small-pox mortality of England at about 3,000 per million of living souls. Dr. Blaine's evidence was nearly similar. Whereas it can be shown that for the years 1841-53 the average loss of life by this disease was only 304, in 1854 only 149, and in 1855 only 52 per million of living population, Dr. Greenhow, in comparing the death-rates of London in 1858 with those at the end of the seventeenth and middle of the eighteenth century, tells us that for every 100,000 people there died—

1681–90	from all causes,	4,210;	small-pox,	313·9
1746–55	,,	3,550;	,,	304·4
1846–55	,,	2,490;	,,	33·8

The Committee of the Epidemiological Society give tables which prove that during the half-century preceding vaccination, out of every 1,000 deaths from all causes, an average of 100 deaths arose from small-pox, whilst for the half century succeeding this discovery the deaths from small-pox were—

For the ten years ending	1810	64
,, ,,	1820	42
,, ,,	1830	32
,, ,,	1840	23
,, ,,	1850	16

Dr. Farr states that the mortality from small-pox, measles, and scarlatina combined in 1854 was only half as great as that formerly occasioned by small-pox alone.

If we turn to the Continental kingdoms we find that during the 28 years previous to the discovery of vaccination, there died in Sweden out of each million of the population 2,050 victims annually; while during forty years after the discovery, out of each million the small-pox death-rate averaged 158. In Westphalia, during the years 1776 80, the small-pox mortality was 2,643; and between 1816-50 it was only 114. In Bohemia, Moravia, and Austrian Silesia, where, from 1777 to 1806, there died 4,000, there now die 200. Again, in Berlin, where for 24 years preceding the general adoption of vaccination, the small-pox death-rate had been 3,422, for 40 years since it has been 176. It will thus be seen that the mortality from the disease is in Denmark but an eleventh of what it was; in

No More Gas or Lamp used in Daytime.—Wherever there is a window, skylight, or fanlight, Chappuis' Daylight Reflectors can be adapted. They supersede all artificial light, and are manufactured at prices suitable for either noblemen's mansions or artisans' workshops. Prospectus sent on receipt of two stamps addressed (H.) Chappuis, patentee and manufacturer, 69, Fleet-street. London.—[Advt.]

Medical and Sanitary Exhibition, 1881.—Award of Merit.—Diabetes. Van Abbott's Gluten Bread, and all other suitable Foods for Diabetic Patients. Dietary Tables and Price Lists post-free on application. Van Abbott, 5, Princes-street, Cavendish-square, W.—Delicate Children and Adults Suffering from Nervous Depression. Van Abbott's Hypophosphite of Lime Biscuits, for Delicate Children, especially those suffering from Deficiency of Bone, Weak Joints, or Debility, and Adults suffering from Nervous Depression. Each Biscuit contains five grains of the Hypophosphite of Lime. "Quite free from disagreeable taste, and taken willingly by Children, and certainly provide an excellent means of administering this valuable compound. Our analysis proves the accuracy of the printed descriptions on the labels of the boxes. The Biscuits were suggested by Mr. W. Adams, of the Orthopædic and Great Northern Hospitals." — *Lancet*, Nov. 4, 1876.—Van Abbott, 5, Princes-street, Cavendish-square.—[Advt.]

Sweden, little over one-thirteenth; in Berlin and large parts of Austria, one-twentieth; in Westphalia, but a twenty-fifth. In the last-named country there now die of small-pox but four persons, where formerly there died one hundred!

In the account of a severe epidemic which prevailed in Norwich in 1819, Mr. Cross, of that city, states that among 215 persons unprotected by vaccination there occurred 200 cases of small-pox, and that of these 46 proved fatal; while among 91 persons who had been previously vaccinated, and who were exposed to the contagion of small-pox, 2 only were affected with a mild attack. Dr. Thompson, who watched the severe epidemic which raged in Scotland from 1818 to 1823 reports that out of 1,500 cases of small-pox after vaccination, 3 only ended fatally, and neither of them in that form of the disease termed malignant; whereas of 400 patients affected with primary small-pox, no less than 100 died!

Here, then, "is confirmation strong as proofs of Holy Writ," of the inestimable benefit conferred on mankind by vaccination, which, if efficiently performed, would banish small-pox from the earth. On this point all medical men are agreed—a small and unimportant minority excepted. Further overwhelming evidence as to the efficacy of vaccination is given in a highly-interesting article on "The Anti-Vaccination Folly," in *Land and Water*, of Jan. 26. In conclusion, as we ought not to defer the execution of a work that is necessary, I would say to those in power, "Resolve to perform what you ought; perform without fail what you resolve."

A Cause of Baldness.—Brushes or combs used on the heads of persons afflicted with scaly baldness will communicate the disease to other heads, and Dr. O. Lassar considers that baldness is spread by hairdressers who employ combs and brushes on their customers, one after another, without any regular cleansing of these articles after they are used. Hair which fell from heads in which dandruff occurred plentifully were collected and rubbed with vaseline. The ointment thus made was applied to the fur of rabbits or white mice. Soon baldness made rapid progress in the parts so treated. Vaseline alone produced no effect.

Swallowed a Bone.—A correspondent sends us the following interesting note of his own experience:—"I have two failings—one is, I like mutton stew; the other is, I wear an upper set of false teeth. But what of that? Eating a portion of mutton stew I was so unfortunate as to swallow a piece of bone, large and sharp pointed. It scratched my œsophagus all the way down. Indeed, I was frightened. The sharpness of the bone produced an acute pain in the stomach, at times reflecting to the spine. I was puzzled what to do for it. If I took an emetic I ran the risk of its sticking in the œsophagus, and thus rendering a surgical operation necessary. I tried the effect of acids on spiculæ of bone, but they had no effect save to make the bony matter harder. Being a regular practitioner as well as a pharmacist, my imagination added to my distress. I consulted a few medical lights who dropped in, but all they could advise was to let things take the usual course. So, thrown on my oars, I began to experiment, with this fortunate result. I found that Boudault's pepsin (twenty grains) and ten drops of muriatic acid C. P., in a tablespoonful of lukewarm water, rapidly softened the gelatin of the bone, and converted the calcareous matter into a very small minimum. Three such doses gave me great relief, and in half-an-hour I was perfectly easy in body and mind, and have suffered no bad effects from the accident."—*Druggists' Circular.*

Our Papers on Popular Science.

SEVENTH PAPER.

"Blessings on Science! When the Earth seemed old,
When Faith grew doting, and our reason cold,
'Twas she discovered that the world was young,
And taught a language to its lisping tongue."
—*Charles Mackay.*

HEAT.—II.

By Edward H. Riches, LL.D., F.R.A.S.

In considering further some of the phenomena in connection with heat, we may bear in mind that a very intimate relation exists between light and heat; for while all the ordinary sources of light are also sources of heat, heat may exist without light, and when natural light is condensed by artificial means, thereby increasing its intensity, the heat which is then produced, as compared with the heat previously sent forth, is also increased. The emanation of heat and light simultaneously in a visible and perceptible form from any body when in a state of combustion, is what we commonly understand as *fire*, while *flame* may be regarded as the luminous vapour which issues from that body. The general physical properties of heat may be said to be invisible, elastic, without weight, having a great tendency to expand, and is capable of being absorbed by all bodies; while the principal effects which heat produces are combustion, the power of expanding bodies, and of converting solids into liquids, and liquids into vapour.

It may be remembered that caloric (which is the agent producing the phenomena of heat and combustion) is not distributed equally over the surface of the globe; for example, the average temperature at the equator is 82½ deg., whereas at the poles it is supposed to be about 13 deg. below zero. This caloric, too, is continually opposed to that force in nature which is understood by cohesion. In our last paper it was mentioned that the sun was regarded as one of the sources of heat; and it has been carefully ascertained that, estimating the total heating power of the sun as 2,300 millions of parts, the heating effect of the rays of the sun upon the earth is capable of melting a layer of ice thirty-five yards thick over the surface of the whole globe, while, be it remembered, that *less than one* of these 2,300 millions of parts reaches our earth. This fraction of heat, powerful as it has been just stated to be, is not, however, all available. It is a great force, and it has its uses in numerous ways; for instance, a part of it is a force whereby the air is set in motion, thus creating wind; a part of it converts the seas into vapour, which returns again to the earth in the form of rain on high levels, such as the great water-shed supplying, as it does, the great lakes, the sources of the Nile, flowing down to the lowlands, supplying thereby water-power, which is again the equivalent for heat. A part, too, stimulates the growth of plants. Thus we see that in long ages past, the heat which then existed has its use even to us now in the matter of coal, which we may well regard as heat stored up for our present use.

A Valuable Invention.—It is gratifying to learn that Mr. R. Adams, of 17, Blackman-street, London, S.E., whose fanlight-openers and silent door-springs are being extensively used, has received large orders for his Patent Reversible Window. The sashes, although they slide up and down in the usual way, can be instantly turned inside out, enabling anyone to clean each side of the glass with ease, while standing in the room.—[Advt.]

All the sources of heat are connected in some way or other with motion, plants growing by heat upon which animals feed, helping thus to produce animal heat and muscular force. Without direct heat from the sun too, at times, our physical frames would soon droop and our energy would be lacking. The light and heat of the sun is life-giving—a mighty and practical force indeed. And we should never fail to revel in it and enjoy it greedily for health's sake, whenever this fickle and well-nigh sunless clime of England favours us with but a brief and transient beam.

We will now glance at the several sources of heat, for it is well that we should, by noting certain phenomena in connection with them, the more rightly apprehend their bearing as producers of this force. We before remarked that *mechanical action* was to be regarded as one of the sources of heat, and this mechanical action may be understood to be the action produced by one body on another, on the effort of one body on another, which action is arrived at either by pressure or percussion. It may be noted that all mechanical operations are attended by heat, as friction, percussion, sudden compression, and violent extension. With respect to friction, it was before remarked that if two pieces of *ice* be rubbed together heat is thereby generated. It was originally supposed that the ice melted because latent heat was made sensible heat, although, as we know, water at a temperature of 32 deg. F. contains far more of heat than of ice. Thus we may well ask how could ice containing such a small amount of heat supply enough to transform it into water were it not that the friction created as above mentioned was a genuine source of heat. It is well known that two dry pieces of wood, if rubbed together, will produce heat. Again, we have the case of friction producing heat in the axles of the wheels on railway carriages. There was a case quoted in America, where heat was intentionally generated by waste water-power, and used for heating purposes, the generator being two flat pieces of iron rubbing one against the other. Certainly, when we feel our hands to be cold we rub them rapidly together; and putting aside the effect which the mere exertion of doing this has in exercising the whole frame, and thereby increasing the activity of the blood, perceptible in the nerve vessels, the actual surface of the hands coming in contact in the act of rubbing experiences local heat. It was at one time supposed that the reason why metals which were violently struck with a large hammer, or with the die in the operation of the coining-press, became hot, was because their density being increased, they were the less capable of containing heat; but we know that *the real source* of the heat produced is the act of *percussion*. And as a proof of this, it may be mentioned that lead, which does not increase in density, becomes hot by percussion; in fact, it is known that lead bullets striking an iron target, in this act of percussion become hot.

To show, too, that *sudden compression* will produce heat, it may be stated that dry substances have been ignited when air has been suddenly and violently compressed; in fact, a certain kind of syringe has been made on the principle of violently and suddenly compressing the air, when, upon the solid piston within the syringe being forcibly driven downwards upon some dry timber, the dry timber has been treated sufficiently to produce fire. Again, it may be ascertained that *violent extension* will produce heat, for if a piece of flexible indiarubber be violently extended for some time; there will be unmistakable signs of heat generated thereby. But while solids alone generate heat by friction, fluids, however much agitated with each other, will not produce a higher temperature; and it may be remembered that, in the case of friction of solid bodies producing heat, air is not necessary in its production; in fact, heat is produced by friction within a vacuum. Also, however long the process of friction be extended, the bodies will never cease to generate heat, and thus it is that it is rightly concluded that heat is a property of matter and cannot possibly be a material substance. In the case of rubbing two *rough* surfaces together, heat will be generated in a less space of time than when two smooth surfaces be so rubbed together, for the reason that certain particles are rubbed off which, being small, are readily condensed and made to evolve their latent caloric.

One body, too, may have a greater attraction for caloric than another, as in the case of rubbing, say, a metal button against a piece of wood, when the metal button will become warmer than the wood. Not even are those "safety" matches which are warranted to "strike *only* on the box" proof against this natural law of heat by friction, for, illustrating the fact a few days since, we *ignited* several of these matches by rubbing them on the hearth stone. One gentleman present ignited one by drawing it *once* rapidly along the leg of his trousers. In our next paper we shall deal with the other sources of heat which have been named.

Extraction of Teeth by Indiarubber Bands.—Dr. Peard writes to the *British Medical Journal*:—In answer to "M. B.'s" query, I would say that the smaller red rubber bands, such as are used for putting around papers, &c., are capital things for extracting teeth, when applied sufficiently tightly. I used these bands (about two-thirds of an inch in diameter) successfully in two instances. There is no special method, that I am aware of, in using these bands; it is only necessary that one should be twisted several times around the tooth as close to the gum as possible. The period between the application of the band and the extraction varies, as well as I can ascertain, from one to four days. My experience, I must add, has as yet been only of incisors and bicuspids (front teeth and front grinders).

The Education of Women.—I confess I more agree with Hannah More's notion of education for such a girl:—"I call education not that which smothers a woman with accomplishments, but that which tends to consolidate a firm and regular system of character, that which tends to form a friend, a companion, and a wife. I call education not that which is made up of shreds and patches of useless arts, but that which inculcates principles, polishes taste, regulates temper, cultivates reason, subdues the passions, directs the feelings, habituates to reflection, and trains to self-denial—that which refers all actions, feelings, sentiments, tastes, and passions to the love and fear of God." If to this we add that which hardens the muscles, adds to the fat, quickens and makes graceful the movements, hardens the bones, softens the skin, enriches the blood, promotes but does not over-stimulate the bodily functions, quickens and makes accurate the observation, increases the sense of real beauty of all kinds, promotes the cheerfulness, and develops a sense of universal well-being, we should have, in my opinion, the principles on which an educational system should be founded.—*Dr. Clouston.*

Scott's Midlothian Oat-Flour.—Messrs. Scott, of 82, York-street, Glasgow, have prepared a singularly pure and nutritious "Oat-flour," which bids fair to take high rank among the food products which are specially adapted for infants and invalids, and for the use of dyspeptics in particular, whose digestion is weak, and whose stomachs refuse to assimilate foods of ordinary kind.—Ed. Health.—[Advt.]

The Family Circle

"The child is father of the man."—*Wordsworth.*
"In bringing up a child, think of its old age."—*Joubert.*

ECONOMICAL BREAKFASTS, DINNERS, AND SUPPERS.

By Mrs. Thwaites, of Liverpool.

EIGHTH PAPER.

Breakfast. — *Indian Meal Breakfast Cakes.* — Without quite emulating our American cousins in the matter of hot cakes for breakfast, an occasional change from meat, fish, or eggs may be beneficial and pleasant. The list of American breakfast cakes is almost countless, and on looking into the recipes for Johnny cakes, flannel cakes, flappers, &c., it is seen that the foundation is generally either Indian corn meal or Graham (*i.e.*, brown) flour; they are seldom so rich as to be either expensive or indigestible. For the cakes in question, take three-quarters of a pound of ordinary Indian corn-meal; sift it through a fine wire sieve; put it into a bowl, with a teaspoonful of salt, and two ounces of either butter or dripping; pour half a pint of *quite* boiling milk over; stir well, and leave to cool five or ten minutes; stir in one egg; then mix one-and-a-half teaspoonful of baking powder with a quarter of a pound of flour; stir these ingredients quickly to the Indian meal. Now use as much flour as may be necessary to form the whole into a light paste; shape with the hands into neat *little* cakes; place on a lightly-floured baking-sheet, and set immediately into a hot oven; bake from ten to fifteen minutes. They should rise to be about twice as thick as at first.

Tomatoes au gratin.—Butter a small pie-dish, and put a layer of bread-crumbs a quarter of an inch thick at the bottom; then four or five skinned fresh tomatoes, or, if these are out of season, half a tin of preserved ones; put a liberal sprinkling of pepper and salt over, and cover with crumbs; put a few small bits of butter on, and bake for fifteen to twenty minutes in an oven hot enough to brown the top.

Tea.—Of course, every woman thinks she knows how to make tea, but it really is to be questioned whether one person in a hundred can make it properly.

Before giving directions for making, it will be well to describe the chief constituents of tea and its properties. The pleasant flavour and aroma are due to a volatile substance called *theine.* It is present in small proportion, not more than 2 to 3 per cent., and is to a great extent lost when tea is carelessly kept and exposed to the air. The only other substance needing mention is tannin, which gives to tea the rough and bitter taste which is very popular. This substance is highly astringent, and produces in many people severe indigestion. The older the leaf is when gathered, the more tannin it contains. Young teas should therefore be selected. Black is decidedly more wholesome than green. To make tea, the teapot (earthenware is best) must be made thoroughly hot, the tea put in; allow one teaspoonful for each person and one over. The water must be quite boiling, but must only just have boiled. Water that has been boiling by the side of the fire for a long time is liable to be smoked, and also loses its carbonic acid and becomes flat. Tea made with water that has been boiling some time has a very different taste from that made when the water is freshly boiled. The teapot should be filled up at once, the cosey placed over, and be allowed to stand. The time required is variable, but it must be distinctly borne in mind that the longer the time the more tannin will be extracted, and the more unwholesome the tea becomes. For fairly good kinds five minutes will be found quite long enough. Tea stimulates the nervous system, slightly quickens the heart's action, and increases the action of the skin, by inducing perspiration. Sugar and milk are taken to counteract the effect of the tannin and improve the flavour.

Dinner.—*Bohemian Soup.*—Four ounces each of raw potato, carrot, celery, onion, and turnip, cut into small pieces. Heat a frying-pan, and put into it two ounces of butter. When quite hot, put in the vegetables, and fry them slowly for half an hour; sprinkle well with flour, stir, and fry until the flour is browned; turn the mixture into a saucepan and pour over it a quart of weak stock or water, and salt and pepper to taste, a pinch of grated nutmeg, two cloves, and half a teaspoonful of mixed sweet herbs; boil all gently until the vegetables are quite soft, rub them through a sieve, and add more stock if the soup be too thick. Fry a thin slice of stale bread cut in dice to a golden-brown colour; put this into the tureen and pour the soup over.

Poor Man's Goose.—Peel and boil until soft six medium-sized onions; strain and chop them; add four tablespoonfuls of stale bread crumbs, one teaspoonful of powdered sage, one teaspoonful of salt, a quarter teaspoonful of pepper, mix well, put at the bottom of pie dish. Cut one pound of pork into pieces about an inch square, mix half a tablespoonful of flour with a little salt and pepper, roll each piece of pork in this mixture, place in the dish, fill with water to about a quarter of an inch from the top. Bake in a medium oven for an hour and a half. The pieces on the top should be nicely browned in the baking.

As a cheap, heat-giving food in winter, *pork* is valuable, and it is very popular amongst the working classes. The flesh from young animals is to be preferred, as being much more likely to be healthy than that from full-grown ones—there is more or less danger in pork from the presence of parasites. They infest the lean, and are found near the bone. To avoid unpleasant results, all pork should be very thoroughly cooked, and it is safest when dishes can be prepared that allow of its being cut into small pieces. It is not wise to use pork often, but with the addition of suitable seasoning it will "go a long way." Plenty of vegetables should be served with it. Pork is wholly unfitted for invalids, young children, or any one whose digestion is not good.

Brown Flour Mould.—One quart of milk (reserve half-a-pint of this to mix with the flour), boil with three or four ounces of sugar, mix five ounces of flour with the cold milk until quite smooth, put in half-a-teaspoonful of salt, add the boiling milk, and stir; pour all back into the saucepan and set over a very gentle heat, continue to stir, and boil for fifteen minutes. Add any flavouring liked, rinse an earthenware mould with cold water and leave it wet, pour in the mixture, and set in a cool place for a few hours.

Supper.—*Rice and Cheese.*—Wash four ounces of rice in cold water, put it into a saucepan with half a pint of water, half an ounce of butter, and half a teaspoonful of salt, cook very slowly until the water is absorbed, add

The "Spécialité" Lime Juice, for family daily use throughout the year, has not the usual musty flavour; will not turn mouldy; may be obtained of Chemists and Grocers.—Feltoe & Sons, Albemarle-street, London, W.—[Advt.]

Pure Water is such a vital necessity that, without it, illness is certain. None are more prone to the ill effects when impure than the young. To ensure a pure supply send a post-card to the London and General Water Purifying Company, Limited, 157, Strand, London W.C., who will return particulars post free.—[Advt.]

three-quarters to a pint of milk, cook again slowly until the rice is quite soft and the mixture thick. Take it from the fire and stir into it two ounces of dry grated cheese and a quarter of a teaspoonful of pepper; stir lightly. It may be served as it is, or it may be put on a dish and set into the oven to brown.

Fruit Jelly.—Stew a quart of any kind of fresh fruit in season with a little water, add plenty of sugar to it; soak one and a half ounces of either sago or tapioca for an hour or two in a little cold water, add it to the fruit, cook very slowly until the tapioca is quite transparent, keep it well stirred. Pour it into a mould wet with cold water, and let it stand in a cool place a few hours. This dish makes a particularly good supper for children.

Jottings from the Journals

"Th' ingredients of health and long life are
Great temperance, open air,
Easy labour, little care."—*Sir Philip Sidney.*

Overworked Girls.—A very dismal account was given the other day of the overworking of girls in a fashionable millinery establishment. Most people have been thinking that the evils denounced were abolished long ago, when inspectors were first appointed to see that sempstresses were not made to work in unhealthy rooms, or for more than so many hours a day. But we are told that the visits of the inspectors are mere forms, and somehow this is alleged to be the case whenever an inspector's work is examined by the light of abuses suddenly flaring up. We should like, however, to hear the inspector's story. Inspectors, of no matter what, are seldom adequately paid, and in discharging their duties they are exposed to many temptatians which, if surmounted, lay them open to much sullen ill-will. The inspector who is determined to find out things must have a fine pair of eyes and a lively wit to cope with the conspiracies which are at once set afoot to mislead him. Generally he gets on the scent of only small irregularities, which are as vermin beside the mammoth evils which he dare not encounter single-handed, and when he has run down one of these small noxious things, no one thanks him, and he finds the game was not worth the time and trouble it cost to kill. The easy-going inspector, on the other hand, leads a pleasant life, and that is something to consider for a man who does not care to be always floundering in hot water. What is an inspector to do if, as we are informed, the very girls who are overworked to the point of losing their health are afraid to complain, lest they should lose the situations which are killing them? We can only look to an improved state of public morality for a reform of these slave-driving abuses, and the improvement will come all the sooner if the overworked girls have the moral courage to stand by one another, and refuse all in a body to submit to treatment which they know to be illegal.—*Graphic.*

Limits of Hearing.—Attention has been directed of late to the experiments made by M. Panchon on the limits of hearing, the results being communicated to the French Academy of Sciences. The notes were produced by a powerful siren of the kind invented by Cagniard-Hatour, and actuated by steam. It seems that the highest audible notes produced in this way had 72,000 vibrations per minute. M. Panchon has also vibrated metal stems fixed at one end and rubbed with cloth powdered with colophane. In diminishing the length of the stem the sharpness of the note is increased. Curiously enough, he finds that the length of stem giving the limiting sound is independent of its diameter; and for steel, copper, and silver, the lengths are in ratio to the respective velocities of sound in these metals—that is, as 1·000 for copper, 1·002 for steel, and and 0·995 for silver. Colophane appears to be the best rubbing substance.—*Scientific American.*

The "Drink Taint."—It cannot be questioned that the craving for alcoholic stimulants may, like every other appetite, inclination, or propensity, be transmitted. This follows upon the fact that all that is mental or moral in man is based upon and arises out of his organic constitution. If certain educated or conformed brain-cells are reproduced in obedience to the law which makes every living thing bring forth seed "in its kind," it is a necessity that the child shall, in its morals as well as physically, resemble its parent, and that it should physically consist of the combined result of its two lines of parentage. This is the physiological argument for the reformation of criminals and drunkards. If we desire to improve the race, we must cut off the line of the incurably bad, and repress the evil as well as cultivate the good, in those who are allowed to procreate.—*Lancet.*

Ship Surgeons. — The unsatisfactory state of the sanitary administration upon Atlantic steamers, with the disabilities under which the ship-surgeon suffers, is a question which has been much discussed in these columns, and which formed the subject of a petition presented last year by the Parliamentary Bills Committee to the President of the Board of Trade. Dr. Irwin, than whom no man has done so much to urge on this much-needed reform in this country, has been demonstrating to our transatlantic friends that the American people and Government are even more interested in the reform than are the English people. The *New York Tribune* sees in Dr. Irwin's measure a reform of special importance to Americans, for the bulk of saloon-travel by the British transatlantic steamship lines is of American families making the tour of Europe, all of whom, during a voyage subjecting the great majority of them to various forms of sea-sickness and to possible danger from infection, are under inferior medical care to that which they employ at home. They maintain, they say, at heavy expense to the State of New York, a quarantine-service to counteract some of the perils pointed out, but it cannot guard against them all. The British Government and the English steamship companies, which enjoy the profits of this great traffic, ought, they contend, to urge the passage of the amended law as suggested. Dr. Irwin's statements have met with much incredulity and contradiction, and it is asserted that the medical service of the ocean steamers is fully up to all reasonable requirements. These statements are hard to reconcile with a return issued by the Board of Trade last year, which shows that of 141 surgeons who during the first six months of 1882 had full medical charge of ships carrying passengers to this country—transatlantic steamers—only twenty-seven who possessed any qualifications as a physician and surgeon had reached thirty years of age; forty-six were under twenty-five years; while sixty of them would have been ineligible, through lack of professional qualifications, for any appointment in our army, navy, asylum, prison, or Poor-law service; that is to say, Dr. Irwin observes, "these ships and your Americans on board of them have been dependent for medical service on men who are pronounced by English law to be insufficiently qualified to treat English convicts and paupers."—*British Medical Journal.*

Our Bookshelf

"Reading maketh a full man."—*Bacon.*

A BOOK OF CHILDREN'S HEALTH-PLAY.

Sound Bodies for Our Boys and Girls. By William Blaikie. Illustrated. (London: Sampson Low & Co., 1884.)

A capital book with an appropriate title, and one, moreover, which shows us how far ahead the Americans (like the Swedes) are of ourselves, in the matter of the education of growing bodies in the ways and paths of health. For Mr. Blaikie writes from New York, and we are indebted to the enterprise of his English publishers for giving us a really good book, armed with which, fathers and mothers, teachers and governesses, may secure many a happy hour

Fig. 1.

for their "bairns," and likewise participate in the benefits of the exercises they may, through Mr. Blaikie's plainly-worded and well-illustrated pages, teach their children. It is a crying want of modern education that no steps, as a rule, are taken to ensure that the bodies of the young are conserved in an equal degree to their minds. These are the days when "cram" and "over-strain" in education are the watchwords of the party which desires reform. But reform of educational abuse, to be effective, must possess a positive side. We cannot condemn "cram" without pointing out the evils of the system of educational "stuffing," and without suggesting a remedy. That the latter will be found to lie chiefly in the direction of graduated physical exercises, as an antidote to mental toil, cannot be doubted. Already parents and teachers are beginning to recognise that weak chests, feeble limbs, and undeveloped muscles are preventible evils. The day is past, for all sensible parents and guardians, when children were allowed to remain unsupervised in their health; and now we have advanced a step further. We have come to see that education may, and ought to, include the development of those physical powers in the child, on the health and energy of which all true mental and intellectual success depends. Towards a practical solution of the physical education of children, Mr. Blaikie's book comes as an appropriate and welcome contribution. At the outset we may, therefore, remark that no parent or teacher should be without this little manual, which, in its neatly got-up form, presents us with an illustrated manual of the utmost value to all interested in the training of the young.

Mr. Blaikie's book consists of twelve parts and an "Appendix," the latter being occupied with tables showing

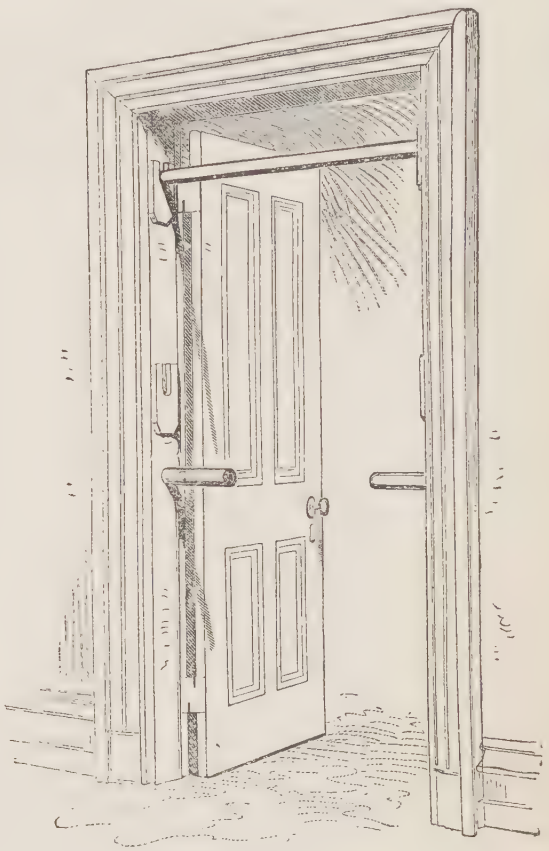

Fig. 2.

the effects of physical exercises on the growth and development of the frames of students. The exercises themselves are carefully graduated. Thus, the first "part" deals with a "preparatory lesson." Here the pupil is taught how to walk and assume an erect posture. Mr. Blaikie writes in a plain and homely fashion. In the following words (see illustration) he details how this lesson is to be learnt:—

1. "Stand about 4 ft. apart, with arms folded behind you, and with one foot about 8 in. in front of the other.
2. "Now draw the head back, and tip it as far down behind as you can.
3. "Hold the chin up high, as in Fig. 1.
4. "Rest there a moment, then stand up straight again.
5. "Repeat this exercise six times.

"Caution—Breathe deeply, full breaths all the time; indeed, always, when exercising, breathe slowly, and as large breaths as you can.

"That is enough," continues our author, "the first morning. In the afternoon again repeat this exercise six

times. But this is very easy. Why not do more than six? Because, while it is easy for some, it is not so easy for others. Also, because it is a common mistake with beginners to work too hard at first, and so they get lame and sore in the muscles they overwork, when, if they would begin with only a little exercise each day the first week, and then do more the next week, and more yet the third, their muscles would get gradually used to the work, and would be all the time getting stronger." From all which it appears that Mr. Blaikie is a sound instructor, and errs always on the safe side of instructing that true progress in physical education must, above all things else, be gradual progress.

Through exercises for enlarging the chest, we pass to those destined to strengthen the arms. There are full instructions given—couched always in plain terms—for "Fore-arm exercises," and for educating the useful "biceps" muscle into becoming a strong servant of the will. The "dumb-bells" are introduced in the course of such lessons, and the frequent woodcuts assist the understanding of the

Fig. 3.

text in a marked degree. A "home bar" is, in its turn, fully described. From a hard wood board Mr. Blaikie tells us we are to cut four pieces or "cleats," of the shape and size shown in Fig. 2. Two of these "cleats" are to be screwed on the jambs of the door as high as the pupil can easily reach; and two more are to be fixed level with the shoulders. An old pitchfork handle is next to be procured, and cut so as to fit firmly into the two "cleats." In this way a single horizontal bar can be cheaply made, and thereon many useful exercises can be performed. Thus (as shown in Fig. 3), standing under the bar, it is to be grasped with both hands. The head is to be tipped back, and then the pupil is to pull himself (or herself) slowly up till the chin touches the bar. Here he is to hold himself till he takes in a good full breath. Then he slowly lowers himself, rests a minute feet on the floor, and then repeats the action. This is to be done thrice daily the first week, and four times daily the second week; "for," adds Mr. Blaikie, "this calls into action the same muscles as pulling up does, and is making them stronger all the time."

"Back-arm exercises" are also described very fully, and the "Dipping" feat is duly enlarged upon. The "Shoulder" succeeds the "Back-arm;" and the pupil is now treated to a course of "Dumb-bell" exercises, the

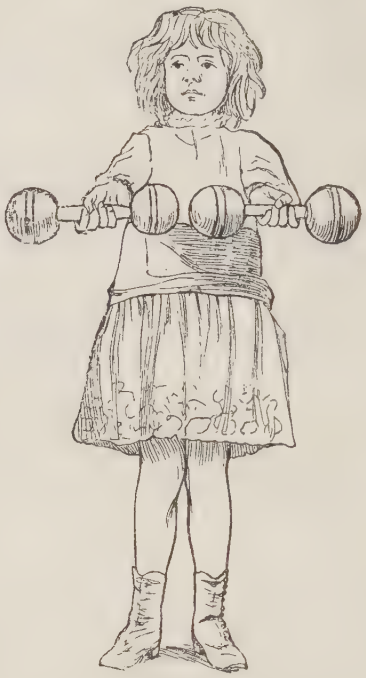

Fig. 4.

Fig. 5.

objects of which are to develop fully the muscles of this important region. In Fig. 4 is depicted the attitude of the pupil with dumb-bells, holding the elbows straight and parallel. The bells are now lifted slowly upward, out in

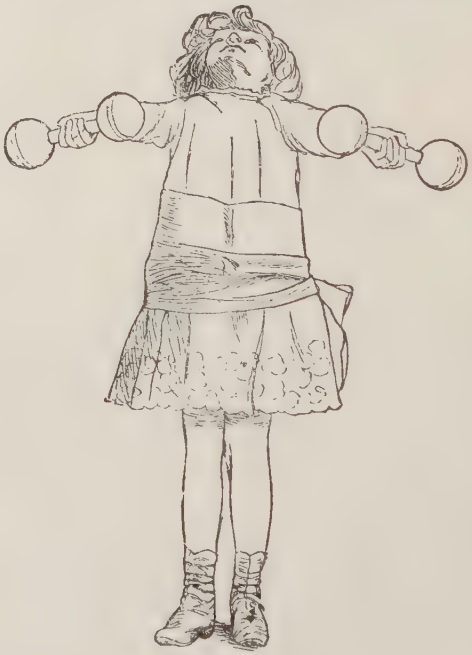

Fig. 6.

front, till they are as high as the shoulders—an attitude shown in Fig. 5. This exercise, performed slowly, and according to Mr. Blaikie's directions, suffices to strengthen, not merely the shoulders, but also to enlarge the upper part of the chest and tips of the lungs, which are really

the weak parts of these latter organs. Another "front shoulder exercise" is that shown in Fig. 6, where the pupil holds the dumb-bells out in front, at the level of the mouth, with elbows straight and arms parallel. He walks slowly up and down, keeping the dumb-bells in the position noted, and again secures, by a different exercise, a power of arm and shoulder which cannot fail to be of immense service in many of the actions of life.

Space forbids us to enter more fully into the excellences of this charming and interesting little volume. There is not an exercise described, the *rationale* of which is not duly explained, and in addition to the complete description of the exercises, Mr. Blaikie adds a few appropriate comments of physiological nature explanatory of the special aims which the actions are designed and intended to accomplish. To each part or chapter, a series of examination questions is appended, and the teacher will thereby be assisted in enabling his (or her) pupils to attain a clear notion of the "why and wherefore" of the physiological play in which they indulge. Altogether, so good a book has not often been presented to the public notice; and it will be a national misfortune if Mr. Blaikie's advice—which, unlike most cheap advice, is eminently trustworthy and most excellent in character—is not largely followed, both in our homes and in our schools. We might add that Mr. Blaikie's instructions, while eminently useful for school purposes, may readily be followed by "children of a larger growth" as well.

"Well," remarked a young M.D., "I suppose the next thing will be to hunt out a good situation, and then wait for something to do, like Patience on a monument." "Yes," said a bystander, "and it won't be long after you do begin before the monument will be on the patient."

Dangerous Paper.—According to the investigations of Dr. Henry Leffmann, the coloured papers commonly used in Kindergartens are not all of them free from poison. The blue papers contain ultramarine; the yellow, lead chromate; but the red contain a large amount of arsenic.

The law is singularly inconsistent in its protection and punishments. If a man commit murder, he may either be hanged or sent to the State prison for life; but preventable disease—scarlet fever, diphtheria, typhoid fever, small-pox, and other death-dealing agencies, may stealthily enter the household, kill the family, and be innocently regarded as an act of Divine Providence.

The Police and Ambulance Work.—The Commissioner of Metropolitan Police has forwarded to the Central Executive Committee of the St. John Ambulance Association a report of a most effective case of "first aid to the injured" rendered by Police-constable Thomas Pearson, 112 B, who was awarded a certificate last year after attending the classes at Albany-street Police-station. It appears that a man was found by the constable in the Buckingham Palace-road, suffering from hæmorrhage caused by the bursting of a varicose vein. Pearson immediately took the proper measures for arresting the bleeding, and conveyed the man to Westminster Hospital, where it was stated that had these precautions not been taken, the man would probably have bled to death; a letter being subsequently received from Dr. Newick, the acting house-surgeon, testifying to the opportune good service rendered by Police-constable Pearson, who will be rewarded by the Commissioner. Considering the frequency of accidents in our streets, and that the duty of conveying the unfortunate sufferers to the hospital devolves upon the police, too much praise cannot be accorded to the numerous officers of the force of all grades who attend these classes.

International Health Exhibition,

LONDON, 1884.

TENTH PAPER.

MEMORANDA FOR THE GUIDANCE OF EXHIBITORS,

Drawn up by the Sub-Committees and approved by the Executive Council.

Ambulance.

The following heads indicate the articles and appliances which the Committee are anxious may be shown by the Army Medical Departments of various countries, the societies established to render aid to the sick and wounded in war, and other organisations which may be able and willing to contribute:—

1. Personal Surgical Equipment, as carried by the Medical Officers of the army in question.
2. Appliances for treatment of wounds, carried by the soldier himself in the field.
3. Personal Surgical Equipment carried by ambulance attendants in the fields, consisting of surgical haversacks (Havresacs Sanitaires), medicine panniers (Caisses Sanitaires), surgical knapsacks, field companions.
4. Ambulance Appliances carried by men, such as stretchers (Brancards), hammocks, dhoolies and palanquins.
5. Wheeled Conveyances wheeled by men—wheeled stretchers.
6. Ambulance Equipment carried by mules, horses, &c. Cacolets, Litières, Mountain Ambulance Equipment (Ambulance de Montagne), cooking equipment for mountain campaigns—portable medicine chests, compressed drugs, &c.
7. Wheeled Vehicles used for the conveyance of sick. Fourgons containing the equipment of Hospital Corps, surgery waggons, equipment waggons, field cooking waggons, pharmacy waggons, nursing utensils carried in waggons of field hospital. Books of instruction for use. Diagrams.
8. Railway Ambulances, consisting of carriages for wounded, with fittings, cooking carriages, and all the equipment of ambulance trains. Materials for converting ordinary carriages into ambulance carriages.

It would be useful if some attendants accustomed to the use of the material accompanied the articles.

The articles will be arranged in accordance with the classification of Classes 31A and 31B, given on page 13.

The Workshop.

This Sub-Committee desire to see illustrated, in as practical a manner as possible, the relation of Industrial Conditions and Processes to Health. The *place of production* of all articles used by man is for the present purpose spoken of as The Workshop.

In this department of the Exhibition are comprised Classes 41—46. (*See page* 13 *for classification.*)

The following heads show the principal subjects which the Sub-Committee are anxious should be illustrated in the several classes of this department, the illustrations being expected to include alike the conditions of injury to health and the means proposed for improvement.

Besides apparatus used, or proposed for use, with a view to minimise danger to life and health, the Exhibits may comprise models, drawings, specimens both of harmful products and improved products, &c., and the Committee will be specially glad to receive collections of specimens, models, diagrams, photographs, &c., showing existing evils or noxious conditions which have been modified by recent improvements.

(*a*) Ventilation of the Workshop:—
- By simple discharge of internal air.
- By destroying offensive or injurious quality of discharged air.

(*b*) Effluvium Nuisances:—
- By condensing and utilising vapours.
- By consuming vapours.
- By other means, as in gas-works.

(*c*) Dust Nuisances: *e.g.*—
- In needle grinding, mother-o'-pearl working, in weaving-sheds.

(*d*) Danger from Mineral Poisons: *e.g.*—
- In arsenic works, white-lead works, playing-card making, card-bronzing, phosphorus and match manufacture.

(*e*) Danger from Animal Poisons: *e.g.*—
- In wool-sorting, rag-picking.

(*f*) Prevention of Accidents in the Workshop: *e.g.*—
- Protection against heat, injury to eyes; against explosions in the Mine and elsewhere.

Our Letter : Box

"Conference [maketh] a ready man."—*Bacon.*

LETTERS TO THE EDITOR.

STERILISATION OF LIQUIDS.

Sir,—In reply to Dr. W. B. Hodgkinson's letter in No. 53 of Health, we can do no better than give the summaries from Mr. Hatton's paper, to which reference is made. In each case a meat solution, having been put aside "until it became full of bacteria," was left in contact with a large excess of the gas to be experimented on.

1. Hydrogen.—Experiment continued for 13 days, "during which time the bacteria lived well, and became very numerous" (p. 249).

2. Carbonic Oxide Mixture.—"Experiment continued for 14 days, during which time the bacteria lived and flourished very well" (p. 250).

3. Cyanogen.—Exp. continued for 12 days. "It appears from these results that cyanogen is fatal to bacteria as long as it exists in the solution in the form of cyanogen. The germs, as the cyanogen disappears, revive, especially in direct sunlight, and after a few days recover, and again become very numerous and lively" (p. 252).

4. Sulphurous Anhydrite.—"The bacteria were examined on the 13th day, when the solution was quite bleached, and were found to be still alive in the strongly acid liquid" (p. 253).

5. Nitrogen.—Exp. continued for 20 days. "The germs lived well, being very numerous and lively throughout the whole of the experiment" (p. 253).

6. Carbonic Anhydrite.—"The bacteria during the experiment (9 days) were in a flourishing condition" (p. 254).

7. Nitrous Oxide,—"The bacteria were quite unaffected by the presence of the gas" (p. 253).

8. Sulphuretted Hydrogen.—Exp. continued for 15 days. "The bacteria were both numerous and lively" (p. 254).

9. Gas from the Electrolysis of Water.—Exp. continued for 7 days. "The bacteria were in a very flourishing condition" (p. 255).

10. Coal Gas.—Exp. continued for 15 days. "The bacteria lived well" (p. 255).

11. Nitric Oxide.—Exp. continued for 10 days. "The bacteria remained and lived well" (p. 257).

12. Acetylene.—Exp. continued for 10 days. "The bacteria lived and appeared quite unaffected" (p. 258).

13. Now comes Spongy Iron.—"Twenty grams of spongy iron were put into a solution crammed with bacteria. . . . Up till the third day the bacteria were alive. . . . *no bacteria were observed at all on the fourth day.* . . . Spongy iron is therefore very fatal to bacteria" (p. 256).

So far, Mr. Hatton. It appears scarcely quite fair that Dr. Hodgkinson should have stopped short of the last sentence in his quotation. These extracts speak for themselves, but if there could be a doubt, the following summary by Dr. Edward Frankland would set it at rest. We find he stated:—"It has been proved by my pupil, Mr. F. Hatton, working in my laboratory, that spongy iron is the only known substance, applicable to the treatment of large volumes of water, which immediately destroys living bacteria."

But your correspondent appears to object that spongy iron had not been compared with some of the strongest poisons and antiseptics. Does cyanogen not satisfy him as a poison? Then as to antiseptics, the action of sulphurous acid is thus described in Dr. Parkes' "Hygiene," fourth edition, p. 130:—"Guyton-de-Morveau, who studied the action of this acid, was of opinion that it completely disinfects miasms, and gives some evidence on this point." Then, again, Dr. Hodgkinson objects that potassic permanganate was, amongst others, more destructive to bacterial life than the antiseptics used by Mr. Hatton. In Dr. Carpenter's "Preventive Medicine," p. 52, on the contrary, we find the following:—"It—sulphurous acid—had a marked superiority over chlorine and potassic permanganate, acting on dried vaccine after the particles had been exposed to its influence for a much shorter period than was the case with chlorine or carbolic acid vapour; but in solution it was not so effective, requiring 3 per cent. to deprive the virus of infective inflammation of its specific powers. . . . . In glanders, this acid was more efficient than the carbolic." Such is the action of the antiseptic, which was beaten in Mr. Hatton's experiments by spongy iron.

There are some minor oversights in your correspondent's letter, to which we beg leave to refer as briefly as possible. He says, "the poisons used by Mr. Hatton happened to be very insoluble in water." Does he mean to say that sulphurous acid is very insoluble? It is true that Mr. Hatton's experiments, as we expressly remarked in our letter of the 18th ult., had nothing to do with filtration; but it is equally true that this adds to the strength of their proof. The contact with a few granules of spongy iron, resting in the lower part of the liquid, can evidently not be compared to actual *filtration through spongy iron.* This accounts for the longer time required in the former case in sterilising the liquid.

If Dr. Hodgkinson styles our remarks about the action of proto-salts of iron on vegetation as "futile," we beg to remind him that this is no argument. Agricultural chemists—for instance, Dr. Voelcker—will fully support the view expressed by us, which, in fact, has been taken from one of his papers. Please take note that your correspondent contradicts, at least by inference, the opinion attributed to him by Mr. Maignen, that the vitality of bacteria was not destroyed by any chemical agent. It is not quite intelligible to us how Mr. Hodgkinson means that the bacteria should have been transplanted and their "torpid" appearance observed, when none at all were *visible.* Lastly, we suppose he knows as well as we that ferrous hydrate and carbonate are separated in spongy iron filters, after having accomplished this physiological task. If desired, we can produce evidence as to this.

However, we agree with Dr. Hodgkinson that the filtration question is not yet settled. Everything is unsettled in this world, nothing settled. We never cease to learn, and progress is all we can attain as the result of our labours; but, at the present moment, we submit we are entitled to the conclusion that the only known filtering medium which is destructive to bacterial life is spongy iron.—We remain, sir, your most obedient servants,

The Spongy Iron Domestic Filter Company.

22, New Oxford-street, W.C.,
April 12, 1884.

DISEASE-GERMS IN WATER AND FILTRATION.

Sir,—Allow me to ask Mr. Maignen a question of some importance. If, as his letter bears out, his filtering materials act as a screen, and keep back germs from passing into the filtered water, how can that screen be otherwise than a source of danger, considering what we are told regarding the enormous multiplying power of these germs? Given a few germs in water, and allowing that Mr. Maignen's charcoal keeps them back, will not his filter be simply a breeding-place for germs? True, he says "clean your filters," but what amount of cleansing can rid a charcoal screen of germs that must multiply by thousands therein in a very short period? It seems to me we want destruction of germs as well as filtration of water, and in this idea I agree with your own views.

Yours, &c.,

London, April 8, 1884. Layman.

QUERIES AND ANSWERS.

GENERAL.

J. Howlett.—Apply to the Spongy-Iron Filter Company, 22, New Oxford-street, London, W.; the Silicated Carbon Filter Company, Battersea, London; or to Messrs. Doulton & Co., Lambeth, London, S.E., who will doubtless supply you with the filter-blocks you desire.

B. Coxwell.—See article in Health No. 52.

Aitken J.—Not suitable for our columns. Thanks.

G. J. C.—Consult Glasgow University Calendar. All information is therein given.

A. B. C.—The so-called "electric" belt you send is a fraud. It can produce no electrical currents, and is simply fitted to serve as a support. You have simply paid dearly for public ignorance of electrical science at large.

Minerva.—1. If you had read with care the remarks we made on the quack advertisement you criticise, you would have seen that what we objected to was the cloaking of the terms in dog-Latin, and the nice little plan of keeping the materials made up for patients, and of selling them (notwithstanding the newspaper advertisement "dodge" of "free advice") at a nice little price. If you do not think it is quackery to charge a guinea or so for a little "Common Dock Root" and other herbs, we can only feel deeply sorry for your mental state. And do you think that "Dock Root" is a wonderful remedy, after all? We never did speak slightingly of "patent medicines," except when such were puffed and warranted to effect cures which no sane person could suppose they could work. We speak strongly against the abuse of all medicines, quack or officinal, as we now protest in equally strong

terms against your attributing to us ideas which you yourself import into our words and statements. "Most medical men" do not use the patent medicines you name. If you choose to run the gamut of the druggists' shops, that is your own look out; but don't imagine medical men encourage such a practice. How can Health aid knowledge and science by recommending "patent medicines"? Your ideas are decidedly original, but that is their only merit. If you will start a health-journal of your own, we shall be pleased (in all humility) to learn from your pages how to conduct such a periodical. 2. The "Well and Dry Platform Sponge Bath" about which you inquire may be had of Messrs. Groom & Co., Liquorpond-street, London, E.C. Price 25s.

Bowling.—1. Probably Millport or Rothesay. 2. Peebles.

Æsthete.—The finest colours and most durable shades in paper can be given without employing arsenic in any way.

W. C. Crawford.—We regret we have no information regarding the address of the company referred to. Our paragraph was copied as it stood from an American journal. Write to any correspondent you may know in New York.

SANITARY.

B. Elgar.—1. Yes. 2. Send for Messrs. Tyler's new catalogue of sanitary apparatus, 2, Newgate-street, London, E.C.

A. G.—The "organic matters" given off from the lungs and skin consist of the worn-out cells and microscopic elements of our frames. This matter is highly putrescible, and forms a soil in which typhus-fever germs are liable to breed.

Eleanor.—Use Sanitas. Place a little of the powder in a saucer, and add boiling water to vapourise it, or use a Vapouriser.

Tom G.—1. The Act does not say so. 2. Negative. 3. Not at present. 4. See page 24 of the volume.

A. W.—1. Apply to the secretary. 2. There must certainly be disconnection.

B. Mulready.—The "wash-out" or Bostel's.

H. Hughes.—We shall see your invention in the "Health Exhibition," and will then be able to judge of its merits.

Sanito Musico.—1. We should have the house thoroughly disinfected by burning sulphur in each room in which the fever patients were treated. Stop up windows, chimneys, &c., and then on a heated shovel place sulphur, over a pan of water. Keep the room closed for three hours or so. About one pound of sulphur should be used for every 1,000 cubic feet of space a room contains. The sulphurous acid gas which escapes is a powerful disinfectant. Thereafter have the rooms newly papered and ceilings whitewashed, and all woodwork sponged with carbolic acid and thoroughly washed and repainted. Disinfect as soon as you can. 2. All respectable paper-stainers make safe and non-arsenical papers. See advertisements in Health for advertisements of such. 3. We do not know the gentleman's address, and personally we have no confidence in the invention. See article in Health, No. 53.

MEDICAL.

D. W.—If you indulge in "violent" out-door exercise, you need not complain if you feel ill. You require rest rather than exercise—save of the moderate kind. Use cold sponging and continue treatment, but the tonic may be stopped. By your own account you are quite well. Drink potass-water, and avoid stimulants.

H. Stanley.—Your symptoms are those of indigestion. Take "Æsculap" water in the mornings as a mild aperient, and then, after bowels have been properly regulated, see to your diet. Avoid tea and coffee, let your food be light for a time, and take "Pepsine" with your meals. Avoid stimulants, and take before dinner a pill containing two grains sulphate of quinine. Restoration of your general health will remove all the other symptoms of which you complain.

Hannibal.—See advice to "H. Stanley" above. If not better, write again.

C. E. J.—1. To make egg-flip:—Take about a quart of beer to three eggs, ginger or spices to taste; warm in saucepan and pour from one jug to another till of the requisite creamy consistence. Occasionally a glass of spirit is added. 2. See directions on the bottle containing the Pepsine. It should be given after food.

Musical.—Try the effect of an injection of perchloride of iron (half an ounce to a pint of water) as a remedy for small thread worms.

Too Fat.—Read the articles in recent parts of Health on "How to Get Thin or Fat." We shall shortly review Dr. Ebstein's work on "Corpulence"—see Health for that notice. Tea is not fattening in any way. Much sleep and an easy mind, together, conduce to stoutness. Drinking vinegar is both a useless and pernicious custom. It gives rise to digestive and other disorders.

Gordon.—1. For ozœna you must take cod-liver oil and iron—about three drachms syrup of iodide of iron to be added to six ounces of the oil, and a tablespoonful of this mixture to be taken thrice daily, after meals. A change of air will also benefit you. Go to the sea for a time. Inject Condy's Fluid and water (say one part Condy to ten or fifteen of water) into the nostrils. No local remedies are of avail without the general health being attended to.

E. J. F.—Yes; the use of cold affusion to chest and throat (if you have sufficient reaction) certainly limits the tendency to cold. The cultivation of a beard and whiskers is also desirable. "Sore throat springs from so many different causes; we are unable to say more without knowing more of your symptoms.

Enquirer.—See and follow advice to "S. O. D." in present number of Health, and above all don't be morbid, as you will soon get well by attention to advice indicated.

Victim.—You have been thoroughly frightened by the quack's pamphlet. The object of all such publications is, firstly, to terrify the unwary, and so to cause them to fly for relief to the quacks, who allege they alone can afford such. See advice to "Enquirer" above; and above all, don't be morbid.

Glen Saunox.—1. We fancy, from your own account, your meal-regularities are at the bottom of your troubles. You should avoid pills and aperients generally. Try stewed fruit, eat apples, &c., and occasionally try Hunyadi Janos Water in the morning. 2. If you are too much confined or on your feet indoors all day, your symptoms may thus be accounted for. The best advice we can give is absolute rest, or, if this is not possible, as much rest as possible at the periods you name. Without rest, no treatment is of avail. You might also fortify your system meanwhile by taking ten drops *Fer Bravais* thrice daily, in water. Write again, if not bettered.

Dundonian.—We should recommend you to take small doses of castor oil as a mild aperient, and to avoid tea and coffee. State more precisely the nature of the other symptom. Is there any pain?

A Reader of "Health."—1. Not necessary to drink water, but no harm in doing as you propose. See article in Health lately on "Hot Water as a Medicine." 2. Yes. 3. Take a bismuth tablet, such as you may procure from your druggist for heartburn. Avoid all acid foods, tea, &c.

W. Talbot.—You seem simply to be suffering from nervous depression. Our best advice to you is to go away for a long holiday; take a sea voyage, or at least a thorough change, and have absolute rest. There are no indications of actual disease in your case, as far as your letter shows, and there is a suspicious character in the transaction whereby you were to be warranted cured for £50. We make bold to say no respectable medical man ever drove such a bargain with a patient. If you want the address of a reliable physician we can send you one. As it is, our opinion is that it is fresh air and rest, not drugs, you want.

Cromdale.—We should advise you for a time to take the following mixture:—Iodide of potass, two drachms; infusion of calumba, six ounces. A dessert-spoonful thrice daily. Clothe warmly; avoid stimulants; guard against chills; and food to be light, but nourishing.

Hope Deferred.—No; you may drink as much potass water as you feel disposed to. It will do you no harm. In the paragraph referred to, crude alkalies were meant.

S. O. D.—If you will put yourself in the hands of quacks you must prepare for imposition. Why not have consulted a qualified physician? Our own opinion is that yours is a common case of a little debility magnified into a serious disorder by quackery, as usual. Try the following:—1. Cold sponging each morning; begin with tepid water, and try cold by degrees. 2. Take a teaspoonful of Fellow's Syrup of the Hypophosphites in a wineglass of water, thrice daily before food. 3. Rest as much as possible. 4. Sleep on a hard mattress. 5. Avoid fluids late at night. 6. Food to be light and nourishing, not stimulating. 7. Attend strictly to digestion, and avoid constipation. Write again, and let us hear how you are.

Pompeii.—We do not quite understand your difficulty. What is called a "faith cure" is, in our opinion, merely an example of the power of mind over body. A person thinks or expects to be cured, and the result wished for (or some result allied to it) happens. To call this a "faith cure," and to think it is alone produced in the "Bethshans," is as absurd as it would be to attribute the sudden cure of so-called "paralysis" to the miraculous power of a fright received by a patient, who, on being told a house was on fire, leapt from his bed in fear and terror, and found he had been cured thereby of his ailment. In each case, when you read of consumptions, cancers, paralysis, and so forth, being cured by faith in the power of prayer as interpreted by the devotees of faith-healing, you should first ask yourself how the ailments in question were proved to be of the serious nature alleged. The world is full of pain and suffering, and the distribution of pain and death is itself one of the great problems which has never yet been solved.

Harry.—Absolute rest after eating is necessary. Let your food also be light for a time, and take a little Pepsine with your meals. Let us hear how you are after a trial of this advice. You had better avoid tea and coffee.

Omega.—We should recommend you to go to a bracing sea-air for a time—Ayrshire would suit you—and to take the tonic recommended to "S. O. D." in present number of Health. You now require rest, change of air, and nourishing food—always supposing that your special ailment has been treated thoroughly to begin with. You give no particulars on this latter head. Probably your wisest plan would be to see an Edinburgh physician before you leave home. We can send you address of one, if desired, on receipt of stamped, addressed envelope.

Paisley.—Try the tonic recommended to "S. O. D." in the present number of Health, and let us hear how you are in a week or two.

Anxious.—To mix carbolic acid and permanganate of potass is inadmissible. Such a practice would destroy the effects of both as disinfectants.

A Well-wisher.—Don't try aperients; they are of no service in your case. Take more open-air exercise; wash your face carefully with Pears' Soap and tepid water; press out the little ducts which have become filled with secretion, and thereafter sponge the face with vinegar and water. Take the following powder as well:—Sulphide of lime, twenty-four grains; sugar of milk, half an ounce, mix well, keep in a stoppered bottle, and take as much as will cover a sixpence every four hours.

Victor.—1. About once weekly or so may be perfectly consistent with health. 2. Occupy your mind with healthy subjects, take open-air exercise, practice athletics, and endeavour in all ways to raise your mental calibre.

Tonic Tincture.—See advice given to "S. O. D.," in present number of Health, and above all do not be alarmed, as you do not suffer from any actual ailment, but only a little weakness, easily removed.

Knock-knees.—Will this correspondent kindly send his name and address to Editor, for purpose of a reference being sent him?

R. Heiman.—Wash the head with tepid water and Pears' Soap twice a week. Use a soft brush, and try the hair-lotion recommended to "Capillary," in Health, No. 53.

Rump Coster.—We suspect the "religious" lecture you heard on the topic you name, had simply excited a host of morbid fears in your mind. The book (leaves of which you enclose) is the production of a filthy quack, and (like the lecture above referred to) is only calculated to alarm you unnecessarily. Don't be morbid, but read and follow advice given to "Helpless" in No. 54 of Health. Above all, steer clear of quacks of all kinds.

Berbice.—See advice given to "S. O. D." in present number of Health. Yes; Pulvermacher's belts are thoroughly genuine electrical appliances. We have tested them.

Talbot.—See and follow advice to "S. O. D." in present number of Health. You are evidently over nervous and anxious about yourself. There is no cause for fear.

Un Cocher de Voiture.—Try a teaspoonful of Fellows' Syrup of the Hypophosphites thrice daily before food in a wineglassful of water. If not bettered thereby in a few days, write again. Your trade is rather against you, as you must, of course, be much exposed to the weather. Should you write again, give fuller particulars of your digestion, &c. Should the sleepiness, languor, and so forth, continue, you must undergo a thorough examination by a physician.

Maori.—You might give the tonic recommended in the previous reply a trial as a general bracing remedy, which is likely to do you good in many ways. If you take our advice you will not fret or be too anxious about your endurance. Let nature take its course, and suit your exercise precisely to your habits and tastes, and regulate your life accordingly. Strict attention to digestion is, of course, necessary in your case. Avoid constipation over all, and try the remedy for piles named to "G. T. B." in No. 50 of Health. Glad to be of any further service.

C. S. C. H.—See and follow advice given to "S. O. D." in present number of Health. Don't be nervous. By attention to the advice indicated you will get quite well.

Amorus.—We think the opinion you have had expressed to you is utterly wrong. There is not the slightest connection between what you experienced in the former case and the result you desire. We fancy all you need is cold sponging each morning, and an occasional dose of the tonic recommended to "Un Cocher de Voiture" in present number. As regards the other matter, from your description we do not think anything abnormal exists; but, to relieve your mind, call on a surgeon.

W. C.—We fancy cod-liver oil, with syrup of iodide of iron added (three drachms iron to six ounces oil), would suit you best. The tonic you name might be taken occasionally as well, but not continuously. Pulvermacher's Electric Belts (194, Regent-street, London, W.) are genuine electrical belts. They have been tested by Mr. Carpenter and ourselves.

Nose.—There are no remedies for what you describe. The practice of breathing through mouth or nose is simply a habit. If you suffer from any nose-irritation, that is a different thing. Look to your general health, and take ten or fifteen drops *Fer Bravais* thrice daily, in water; and throw up a weak solution of Condy's Fluid and water into the nostrils, applying Vaseline to them at night.

Pater.—Why alarm yourself by an "old wife's tale"? There is no connection whatever between the veins of a child's nose and its longevity. Did you never see an adult with blue veins on the nose? Look well to your child's health, and fear nothing.

J. Mack.—Don't irritate the skin. Rub in pure Vaseline each night, and, if possible, apply by day as well. Let us hear how the part is after a fortnight's perseverance with this remedy.

Taff.—1. Such a case as that you mention is by no means uncommon. The cause is often purely physical, as well as occasionally mental. Is there no pain or any other indication of anything being out of order? Failing to find such evidence (which a physician would appreciate and act upon), give the tonic recommended to "Un Cocher de Voiture" in present number twice a day, at intervals. If you write again, after a trial of this advice, send fuller particulars. 2. The "Chemical Food," if prepared by a respectable druggist, should be a perfectly trustworthy preparation.

T. Wilson.—We have never heard of the books you name. Have you no clue to the publisher? There is a series of health-manuals published, we think, by Messrs. W. Allen & Co., London, formerly published by Mr. Bogue.

W. R. C.—We have no confidence in such an advertised institution. You can derive no benefit therefrom which you could not get from ordinary medical advice. Read and follow advice given to "Helpless" in No. 54 of Health, and don't be nervous or morbid. Write again if not bettered thereby. The institution whose prospectus you enclose is a regular quack affair.

Ludovic.—You are highly nervous about yourself, that is all. You are not in bad health, and only require to educate yourself out of your morbid feelings to be quite well. You suffer from no disease. Take the tonic you name occasionally—it will do you good—and a little Pepsine with your food.

An Interested Subscriber.—Attend to your digestion. Include fruit and vegetables in your dietary, and avoid constipation. Take a little Æsculap Water occasionally in the mornings, and for the pimples try the lime-powders ordered to "A Well-wisher" in present number of Health.

Youthful Folly.—Any surgeon would suit your case. His fee would not exceed what you name provided you told him your circumstances. Continue to follow our directions; in time you will further improve; and, in addition, we should recommend you to drink freely of potash water, and to inject morning and night with tepid water and Condy's Fluid—about one part Condy to fifteen or twenty water.

Percolator.—We believe in keeping children's hair short, and we should recommend you to cut your little girl's hair and keep it as short as a boy's for some time. The hair will certainly be strengthened thereby, and the practice is, moreover, a healthy one.

R. B.—You seem to be generally "out of sorts." As a preliminary measure, we should recommend you to look to your food. Rest after meals, and take a little Pepsine with your food. The pains you speak of are probably of digestive origin. Clothe warmly. Take hot salt-water baths occasionally at night (add Tidman's Sea-salt to the hot water) and avoid late suppers. See that you also guard against constipation.

Alice Ward.—Our opinion is that a visit to the "Zander" Institute, 7, Soho-square, London, and a consultation with the surgeon there (by way of seeing which of the movements there practised by varied machines would suit you) would result in much benefit to you. If you would call there you would be shown the institution, at which you could attend daily for "movement exercise," carefully adapted to your case. Glad to be of any further service.

P. A.—Your wife is very foolish in not going to consult a surgeon. Whatever the "lumps" you name may be, she will, sooner or later, require to knew their nature, and her present state of uncertainty and anxiety is not compatible with the exercise of ordinary common sense. Let her see a surgeon at once. We may relieve her mind, meanwhile, by saying that she has assuredly no symptoms of cancer.

Rheumatic.—Celery is generally credited with having anti-rheumatic properties; but by itself we should say the plant has only a slight action on the system, and certainly insufficient to cure rheumatism. We do not know how "celery tea" is prepared; but, if by this name you mean (as probably you do) an infusion of celery, it should be drunk plain and unsweetened.

Constant Reader (Liverpool) will please use some more dis-

[*Continued on page* 48.

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tinctive name in future. Try a judicious course of gymnastics at a gymnasium. Sponging each morning with cold water is a health-measure, but it can have no appreciable effect as a "cure" for bandy legs.

Calton.—Try the following lotion:—Glycerine, an ounce and a half; bicarbonate of soda, one drachm. Apply to the affected parts. If not cured, write again.

Arcturus.—Dieppe or any of the near watering-places might suit you; though not so handy as Boulogne, where the air, in our opinion, is quite as bracing, less damp, and where the means of access (*vid* Folkestone and S.E.R.) are supremely easy. We shall shortly begin in Health articles on "Foreign Health Resorts." The new boats from Folkestone to Boulogne make the passage in little over an hour. The Dieppe passage is about five hours, and often very rough and tidal.

A. J.—Try a little cod-liver oil—a tablespoonful after meals. If not better, write again. You don't seem to require any treatment.

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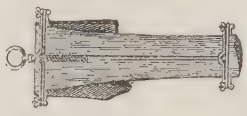

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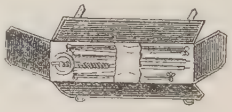

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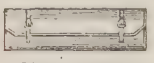

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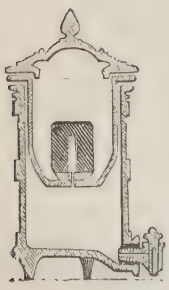

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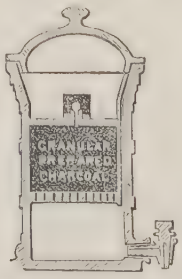

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HEALTH

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, MAY 2*, 1884.

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Notes by the Way

"Health is the foundation of all our physical happiness."—*Herder.*

We learn that a "Medical Home," fitted with every comfort, is to be established in Rome for the reception of tourists and others who may be seized with illness during their stay in the "Eternal City." The exigencies of illness abroad need no description or enlargement, and the above project is therefore to be warmly commended from its obvious utility to those who travel.

✣ ✣ ✣

That fever-infection can be conveyed by post has long been known. The *Medical and Surgical Reporter* gives a case in which scarlet fever broke out in a house and district perfectly free from the disease. A letter from a relative, who had lost a child from the disease, undoubtedly contained the infective germs. The letter brought a photograph, which had been freely handled by the family; and seven days after its receipt the first child developed the fever-symptoms.

✣ ✣ ✣

Infection through coins is the latest idea regarding the spread of infectious diseases. Dr. Reinsch alleges that on small silver coins the bacteria and bacilli (or disease germs) multiply. It is not precisely stated whether the bacilli in question have been actually identified as those of any disease. Until further evidence is adduced, we should feel inclined to believe that coins may carry bacilli, as most other objects may contain them, but that the germs in question are probably of harmless type. It is a great mistake to suppose that all "germs" are necessarily those of disease. As a matter of fact, many germ forms are known which do not appear to be connected in any way with the production of ailments. The air itself, for that matter, is a "stir-about" of particles, as Professor Tyndall long ago remarked; but no one dreams of maintaining that the living particles of the atmosphere are necessarily all disease-germs.

✣ ✣ ✣

Some idea of the effects of insufficient sanitation on the life of the poorer classes may be gathered from Mr. Wynter Blyth's last annual report on the sanitary condition of St. Marylebone. Several streets and courts, for the most part occupied as tenements, were inspected, and the result has been to show very forcibly what close, ill-ventilated, over-crowded rooms and deficient drainage will do for the health of the people. In Burne-street, near the Edgware-road, six out of forty-two houses were found destitute of all drains whatever; while others had only old brick drains, not trapped before entering the sewer. The death-rate here has been 24 per 1,000 living; the excess having been largely due to zymotic, tubercular, and lung-disease. Devonshire-place, with its damp, broken-down tenements and defective drainage, has had the enormous average mortality during the last seven years of 39 per 1,000, consumption having been accountable for the major portion. In Gee's-court, a very confined entry branching out of Oxford-street, which is greatly inhabited by old people, crossing-sweepers, and others, who, in their callings are much exposed to the inclemency of the weather, the average death-rate has reached 30 per 1,000, and the chief destroyer has been bronchitis. Horace-street, which, though called a street, partakes more of the character of a narrow, stuffy, enclosed entry, with an archway at either end, where the houses are small, and, as a rule, consist of only four rooms, has an average death-rate of 32 per 1,000, consumption and other chest affections being the principal form of disease; while the death-rate for St. Marylebone as a whole, including the localities we have mentioned, has been for the last seven years 20 per 1,000.

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It will thus be easily seen that in these tenements, where the rooms are small and often damp, the atmosphere close, confined, and offensive, not only from the number of people living in the one room, but from want of sanitary precautions, the tendency has very decidedly been to shorten human life. It may be said that the occupation of most of the inhabitants—tailors, needlewomen, and the like—is of itself injurious to health, and tends to favour consumption, which, as we have seen, is the most prevalent form of complaint. But, on the other hand, many of the people, when taken ill, go into hospitals and die there, so that it is almost impossible to calculate the exact death-rate. Take it as we will, the results are startling, and they will certainly make all thoughtful people the sadder for the reflection that, amidst great wealth and the furthest science, such depths of misery should be found. Extremes meet, here as elsewhere.

✣ ✣ ✣

A society which bids fair to take a prominent place among those scientific bodies which possess a strong social side, is that bearing the name of the "Society for the Study and Cure for Inebriates." Of this body Dr. Norman Kerr is president, and the list of vice-presidents and council includes the names of many of our most distinguished physicians and physiologists. The objects of the society are those of investigating the various causes of intemperance, and of educating both the public and professional mind in a knowledge of these causes, and of recognising the physical aspects of habitual alcoholism.

✣ ✣ ✣

The Society held its inaugural luncheon on the 25th ult., in the rooms of the Medical Society of London. We have been favoured with a copy of the menu, which, to say the least, does infinite credit to Mrs. Marshall, of the School of Cookery, 30, Mortimer-street, W., as the caterer. The "wines," were, of course, "unintoxicating from their native vineyards," to quote from the menu, and included "Muscat," "Vesuvius," "Madeira," "Alto Duoro," "Bordeaux," and "Congress"—these "wines," in the case of the "Alto Duoro" and "Bordeaux," producing, when fermented, the finest port and clarets respectively.

After the luncheon, Dr. Kerr delivered his presidential address, which teems with good sense and with sound science. We have always admired Dr. Kerr as a representative of the best species of total abstainer. He bases his doctrine of abstinence from alcoholics on a scientific foundation; and he is always alive to the difficulties in which dogmatic—and, we will add, ignorant—teetotallers too frequently land themselves, to the injury of a good cause. For example, Dr. Kerr remarks in his address, "We do not know all about intemperance . . . . Of the origin and development of intemperate habits in the individual we know next to nothing." Now, these are hopeful words, coming from an abstainer and a physician. They teach us that there is at least one scientific abstainer who regards the problems of intemperance, not merely as complex, but also as eminently worthy the study of medical men. It is, after all, the frank recognition of the fact that the whole question of temperance is not by any means a simple one, that gives to Dr. Kerr's words and work their power. The sooner teetotallers recognise the complexity of the problem they are attacking, the more hopefully will their cause progress. That cause is often injured through excess of zeal; and that, for the advancement of the temperance cause, science, as well as moderation and caution in argument, are necessary conditions, goes without saying. The "Society for the Study and Cure of Inebriety," has much useful work, and, we trust, a long and successful career, before it.

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A correspondent, paying an early visit to the "Health Exhibition," tells us that the Exhibition is in a forward state, and bears, even now, full promise of presenting attractions sufficient to woo even the most casual and uninterested to a study of the conditions of healthy living. In the South Gallery, the public will be treated to the sight of cows being milked and butter made. The vegetarians will have ample opportunity of showing what they can present in the way of cheap and wholesome food, in the Vegetarian Dining-Room. A whole street of artisans' dwellings will form another attraction; and improved bakeries will also be exhibited, we presume, in full working array. The "Art Schools Collection" should be interesting as an exhibit in the way of artistic house decoration. The gardens and promenades promise to be as brilliant as ever; and we should opine the public will discover that the "Health Exhibition" will be quite as attractive as, and infinitely more instructive and practically useful, in its bearing on public and private health, than its predecessor of last year.

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A hint to parents is conveyed in the information which comes to us from Coventry regarding measles. As in the case of most other epidemics of children, one attack of measles is regarded as usually protective against a second. At Coventry, children were attacked for the second and third times. Fortunately, measles is but a mild ailment compared with scarlet fever, but the above fact should tend to make parents and teachers all the more suspicious of this disease when even but one case has made its appearance in a district. It is, of course, possible that special conditions may have made the Coventry epidemic of more than usually infectious character.

✣ ✣ ✣

Dr. Andrew Wilson, editor of Health, is writing a "Manual of Hygiene" (or Health Science) for Messrs. Longmans & Co. The book, which will be published shortly, will deal with the elementary principles of hygiene, and, as such, will be adapted for those preparing for examinations in this subject.

Original Essays

"Life is not to live, but to be well."—*Martial.*

A HEART IN THE WRONG PLACE.

By Dr. Andrew Wilson.

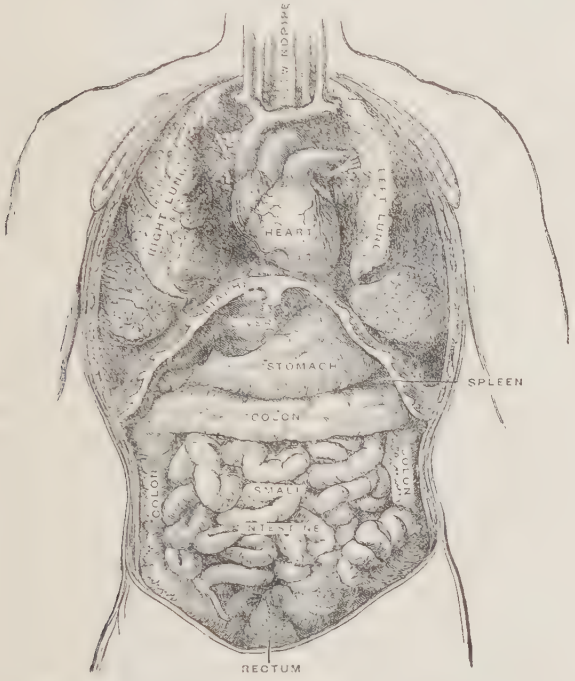
Amongst the veritable curiosities of human existence, may certainly be numbered those by no means common cases in which the organs of the body are found misplaced by nature, as it were, and occupying situations of unusual and unlikely kind within the frame. The phrases "having a heart in the right place," and its opposite, have each their anatomical side; for there are cases known in which, so far from the heart having occupied its usual position, the organ has been found very far removed from its natural region. Cases of "floating kidneys," again, figure in the list of anatomical irregularities, and occasionally a complete transposition of the internal organs may be met with in the *post-mortem* room, or may even be made out during the patient's life.

It can readily be understood how interesting and important these cases of alteration—or, as it is technically named, *malposition*—of the body's organs become, when we reflect that the diagnosis of disease is often thereby rendered a task of highly complex and difficult nature. If, when examining his patient, a doctor finds dulness and solidity, where he expects naturally to meet with the reverse conditions, the medical man is apt at once to suspect the existence of either abnormality or disease. A liver placed on the left instead of the right side of the body, for example, might seriously complicate a medical examination, when, as might be likely, the idea of "malposition" of bodily organs has never entered the doctor's mind. A heart shifted from its place, may, it is true, be so moved by disease; but when we reflect that this organ may be "malposed" by nature, we see the need which exists for medical science to thoroughly investigate all cases in which any alteration of the bodily structure is suspected. Even certain organs may be wanting or undeveloped. In a case recently reported, the spleen was wanting, and this fact alone teaches us how curious are the ways and works of arrested or altered development in its effects on the animal frame. Life, it would seem, is quite compatible with the serious alteration or even absence of organs and parts which are popularly esteemed as absolutely essential to the performance of vital functions, and to the maintenance of the body's existence as a whole.

To properly understand the nature of the curious facts which an excursion into anatomical byways may reveal, we must firstly glance at the natural position of the body's organs. As shown in our illustration, where the front wall of the body has been removed, the organs of the chest and abdomen occupy definite positions and exhibit stable anatomical relations to one another. The *thorax* or chest, as every one knows, contains the *lungs*, one on each side, with the *heart*, contained in its bag or *pericardium* lying between them. The chest itself, is completely shut off from the *abdomen*, or lower cavity of the trunk, by a broad muscle. This is the *midriff* or *diaphragm*. It forms at once the arched or convex floor of the chest, and the concave roof of the abdomen; and is the chief agent in the work of taking in a breath. By the descent and contraction of the diaphragm, the chest is enlarged, and we are enabled to inspire. "Hiccough" is due to the spasmodic action of this great muscle.

Only quadrupeds or *mammals* have this division of the

body into two compartments, it may be noted—birds and reptiles, frogs and fish, to descend into the Vertebrate group, having the body all in one cavity, so to speak, and not possessing a chest separated from the abdomen, as in man and his neighbour mammals. The *abdomen* contains the digestive organs, together with the kidneys and spleen. The relations of these organs to each other are well shown in the illustration. Thus, the *stomach*, in man a pear-shaped bag (with the large end of the pear lying to the left side) occupies a middle position. The *liver*, weighing between 3 lb. and 4 lb., and forming the largest gland in the body, lies to the right side of the body, viewing the body from the front. The *spleen*, a blood-gland devoted to the elaboration of that fluid, lies to the left of the stomach, while the *pancreas* (or "sweetbread") lies somewhat below, and behind the latter organ. The remainder of the abdominal cavity is occupied by the *intestine* (or bowel), measuring about 26 feet in length; and by the *kidneys*,



View of the Internal Organs in position, as seen from the front.

which are placed in the *lumbar region* (or that of the loins), one each side of the spine.

Such being the normal disposition of the organs of the trunk, we may now refer to certain cases of malposition which have from time to time attracted notice. In 1882, conversing in Paris with my late friend, Sir John Rose Cormack, M.D., regarding malpositions of organs, I found that in 1881 he had published details of a very curious case of such abnormality—the case being all the more interesting in that the malposition of organs was detected during life. The patient—one of Sir John Cormack's own—was a young lad, who presented such peculiarity of chest-structure that, after further examination—substantiated and verified by the independent opinion of other eminent physicians—he was declared to present complete transposition of his internal organs. In this patient, by aid of careful examination, the heart was ascertained to occupy a situation on the right side of the chest, corresponding to that in which it naturally lies on the left side. Furthermore, the liver, instead of being situated on the right side of the abdomen, was ascertained to lie on the left side. The situation of the spleen was not determined, but the probability is that this organ was likewise altered in position. The patient himself was a robust, healthy, young man, an officer in the English army; athletic, and much given to gymnastic exercises.

Sir John Cormack, in the paper descriptive of the above case, quotes other instances of the same and of allied conditions. Professor Gruber, of St. Petersburg, gives the case of a young soldier, in whom, likewise, complete reversion of internal organs was found after death. The heart lay principally on the right side; the left lung showed all the characters of the right, and *vice versâ*; the position of the "midriff" was reversed; the liver lay to the left side; the spleen lay behind the stomach on the right side; the pancreas was reversed in position; and *two additional spleens* were also found. Professor Gruber, analysing seventy-nine cases of this curious tendency—one of these occurring in the horse—showed that the majority of the cases occurred in the male sex. By some authors it has been alleged that in left-handed subjects there is often such malposition of organs; but this latter opinion is not borne out by what has been actually observed and noted in the study of these cases.

In reply to an inquiry of mine respecting the influence of inheritance in determining or producing these transpositions of parts, I was referred by Sir John Cormack to a list of authorities, and my late friend's manuscript notes lie before me as I write. The general opinion appears to indicate that this condition, as far as is known, is not materially influenced by inheritance. Perhaps the most interesting fact which our search into the causes of these conditions revealed, was a remark of Dareste's, who asserts that he produced a transposition of organs in a chick by exposing one side of a hen's egg to a greater heat as compared with the other side. One side was exposed to a temperature of 41° to 42° C., and in the young bird the organs were found to be transposed. But it is evident much further research is required before this experiment can be accepted as in any way explanatory of the cause of the conditions observed in the young bird.

More recently (1883) a case of malposition of organs was recorded by Dr. W. J. Mickle, of Bow. Here, in the case of a man aged 40, the heart was found to be transposed; the liver lay to the left side; the lungs were reversed; the spleen lay to the right side; while the disposition of the intestine was found to follow the same order of reversion—the junction of the large and small intestine taking place on the left, instead of on the right, side.

More recently a case of such transposition of organs has been extensively quoted in English journals from the *Philadelphia Record*, as an occurrence of great rarity. Headed "One of Nature's Freaks," the case in question has been much discussed by the public, the result of the journalistic heading having had the effect of elevating a well-known physiological occurrence into the rank of an event of unprecedented kind. In the instance to which we allude, a medical man discovered that the patient's heart lay over

Pure Water is such a vital necessity that, without it, illness is certain. None are more prone to the ill effects when impure than the young. To ensure a pure supply send a post-card to the London and General Water Purifying Company, Limited, 157, Strand, London, W.C., who will return particulars post free.—[Advt.]

A Valuable Invention.—It is gratifying to learn that Mr. R. Adams, of 17, Blackman-street, London, S.E., whose fanlight-openers and silent door-springs are being extensively used, has received large orders for his Patent Reversible Window. The sashes, although they slide up and down in the usual way, can be instantly turned inside out, enabling anyone to clean each side of the glass with ease, while standing in the room.—[Advt.]

to the right side of the chest, while the other organs are tacitly to be taken—as the description goes—as having their positions reversed.

A remark contained in the paragraph, to the effect that the medical attendant, who discovered the unusual situation of the heart and other organs, pronounced the condition one of extreme rarity, seems to show that the literature of the subject is not so well appreciated on the other side of the Atlantic as in Europe. Be that as it may, these cases reveal an aspect of living beings which is not without its instructive side. The lesson of life's adaptation to unusual conditions is again taught us by a new channel. We see the possibility of life's processes being carried on, even though the heart itself—not to mention other organs—is, anatomically, not "in its right place."

ELEMENTARY EDUCATION AND HEALTH.

By Wm. Lant Carpenter, B.A., B.Sc.

I have read with very great interest the articles and newspaper extracts on this most important subject which have from time to time appeared in these columns, as well as a great deal of the "overstrain" controversy in other journals and periodicals. There is one aspect of the question which certainly does not appear to have received the attention it deserves, but, at the same time, it is one to which those who have studied the question are disposed to attach very great weight, viz., the *influence of variety*, not only in subjects taught, but in methods of teaching, and upon this I now purpose to offer a few observations.

It would appear to be the opinion of many elementary teachers that a child's progress in any given subject was directly proportional to the time spent upon it in the school-room, to the exclusion of all other subjects; at any rate I cannot explain, on any other hypothesis, many of their remarks and objections as to "want of time" to do this or that. It may sound paradoxical to say so, but within somewhat broad limits I believe it to be strictly true that, after a certain point, every additional continuous quarter of an hour spent on a particular subject is not only time wasted, but is actually harmful in its influence upon the child's mind. The utter weariness and disgust which results from the mechanical iteration of the same lesson many times repeated, produces a non-receptive condition of the juvenile mind, for which I believe there is only one cure—*variety*, both in subject *and method* of teaching.

Perhaps the first instance in connection with education in which the beneficial influence upon the mind of variety in occupation, whether bodily or mental, was first noticed on a large scale, was that of the "Half-timers" in the cotton factories. When "grandmotherly" legislation first interfered (not before it was needed) to protect these poor children, it was found, as a matter of fact, that when their time was divided between the factory and the school-room, the progress made in each case by any given child was nearly as great, as though his or her whole time had been devoted to either separately.

In the case of ordinary (full time) elementary schools, however, the particular "variety" that I should be disposed to urge very strongly is that some portion of every day should be devoted to such teaching as will bring about a union of the subjective and objective in the same mind, and will help to place the child in intelligent connection with the objects and phenomena by which it is of necessity surrounded, whatever be the conditions of its daily life. Few of us, perhaps, have properly reflected upon the enormous amount of information regarding the external world which is gained by an ordinary child during the first year or two of its life. The late Dr. Whewell, in congratulating a friend, famous for his knowledge and ability, on the birth of a son, remarked, "Young as he is, he will learn more than you in the next twelve months!" Who among us that has carefully watched children before they can speak, will not readily acknowledge that observation and experiment are their two great channels for acquiring information? And what are these but the methods of the man of science?

Does it not, therefore, seem most in accordance with common-sense that in any well-devised scheme of education—using that much-abused word in its etymological sense of *educing* or drawing out the faculties—nature's method of teaching should not be at once and entirely put aside in favour of an arbitrary system devised by man, but that the two methods should be combined? In other words, the variety both in subject and method of teaching which I advocate is to be sought in the substitution of *objective teaching* for some of the purely mechanical A B C drudgery, and I am prepared to maintain that where this is properly done, even under the existing conditions of the present education code—*i.e.*, by the devotion to it, not of additional time, but of time at present given to mechanical grinding at the three R's—the general intelligence of the children will be so much quickened that the rest of their "school work" as ordinarily interpreted will be got through, not only better as regards the examination results, but with far greater ease to themselves and their teachers. I make this assertion in the widest sense, considering it applicable to all classes, not only in a public elementary school, but to the education of young people of all ages; and I make it not as a matter of mere theory, but base it upon the results of several years' work wherever the system has been fairly tried. The first effect of its adoption in the Board Schools of Liverpool was to increase the percentage of passes at the Government examinations in the three R's from 74·5 per cent. to 87·8 per cent.; or, in other words, to pass six children where only five passed before. In Birmingham it is found that the interest of the girls in this teaching is such that, when the science lesson occurs on the same day of the week as that set apart for washing at home, the mothers are obliged to change their washing-day, as no powers can keep the children away from school!

To those who really desire fuller information on this important subject, I shall be very glad to send (gratis) a copy of a paper upon it, read before the Society of Arts, on Jan. 23rd, 1884, if they will send to me, at 36, Craven Park, Harlesden, London, N.W., a fully-addressed newspaper wrapper. As the Editor informs me he feels interested in the full discussion of this all-important topic, it is possible that I may deal with it again in a future article, and show how the elementary scientific instruction thus given in the schools has a very practical bearing upon the maintenance of Health in the Home.

The "Spécialité" Lime Juice, for family daily use throughout the year, has not the usual musty flavour; will not turn mouldy; may be obtained of Chemists and Grocers.—Feltoe & Sons, Albemarle-street, London, W.—[Advt.]

The *Drug News* states that Dr. Brandini, of Florence, has recently discovered that citric acid will assuage the violent pain which is the usual concomitant of cancer. He applies to the part pledgets of lint soaked in a solution of four grains of the acid in three hundred and fifty grains of common water, with the result of affording instantaneous relief.

Public Health

"Health is the first Wealth."—*Emerson.*

THE MORALS OF THE DRAINS.

EXTRACTS FROM A POPULAR LECTURE.

By J. Crichton Browne, M.D., LL.D., &c.

The subject which I have selected may seem unsavoury and paradoxical. The word "drain" is apt to produce an involuntary curl of the nostril, and the idea that there may be a moral meaning and purpose in those underground conduits of filth, sounds scarcely less preposterous than the proposition that there is a heart in a wheelbarrow. And yet I hope to convince you that questions of vital interest and importance have their roots in the drains, and that a good deal of morality goes to the making of them. That there are sermons in stones is a poetical commonplace; that there are ethics of the dust, Mr. Ruskin has demontrated in his own exquisite way; and that there are morals of the drains for those who can read them aright, I shall this evening maintain. . . . .

Let me impress on you that *each house should be an independent sanitary unit*, cut off from all connection with neighbouring houses and common sewers. Evil communications corrupt good manners, and the most upright and well-disposed drains may fall into evil ways and bring anxiety and sorrow into the household if they are permitted to hold promiscuous intercourse with the sinks of iniquity outside. In a sanitary sense, it ought to be peculiarly true that an Englishman's house is his castle, deeply moated, strongly bastioned, well guarded to resist the onslaughts of the mighty, though minute, hosts of the kingdom of Bacterium that are for ever surrounding, undermining, escalading, and bombarding it by night and day. And of all the defences of the castle, the portcullis that guards the gateway, is one of the most important. You must have observed that in old castles and fortresses there were not half-a-dozen entrances, but one, not a front and back and area door, but one portal where the warder stood; and that is a cardinal principle to adopt in our sanitary strongholds. There ought to be not half-a-dozen nor two nor three outlets from a house for drains, but one only, and there special precautions should be provided against assaults and surprises, and special facilities afforded for the inspection of a sanitary sentinel as he makes his rounds from time to time. The householder ought to feel satisfied that the only passage by which his enemies can gain admission to his dwelling is securely barred against them.

Disconnection of house drains from sewers is a matter of primary consequence, and were it thoroughly and universally carried out we should have an immediate and striking diminution of sickness amongst us. Now, here I show you a diagram of an approved apparatus for disconnection — a portcullis of the drains, a sanitary drawbridge, across which, if it be properly constructed and placed, it is practically next to impossible to pass. And for invaders the portcullis or drawbridge in this apparatus is a current of fresh air. You will recollect that the witches of old could not cross running water, and that Tam o' Shanter owed his safety to that fact, although he didn't succeed in bringing his mare's tail off Scot-free. Well, the modern warlocks of the drains —malignant sprites!—that play worse cantrips than Cuttie Sark and all her crew, cannot cross running air; so that ventilation is an infallible protection against their practices.

There, at the point where the main drain of the house leaves the premises, at the very neck of the system, you have a large chamber and gully standing between the drain coming from the house and the drain that conducts on to the sewer, and giving unrestrained access to the open air. In this chamber there are constant movements or currents of air corresponding to every change of temperature or of barometric pressure, and answering to every breeze of wind that whistles down the gulley. On the sewer side of the chamber there is a bend in the drain-pipe or trap which stands full of water, and bars the passage from the main sewer into the chamber; but even if the foul spirits of the sewer were to force this trap and push their way into the chamber, they would still be powerless for mischief, being hurried up into the outer air instead of being permitted to sneak up the house drains. The disconnecting apparatus represented in this diagram is a rather expensive one. It could not cost less than £3, and might mount up to £10, but through the kindness of Messrs. Innes and Burton—gentlemen whose fathers, well known to us as Cosmo Innes and John Hill Burton, wrote history, and who are themselves making history in a sense opposite to that of the Irish Invincibles, by saving lives that but for their exertions would be squandered away—I am enabled to show you models of disconnecting apparatus suitable for small houses and cottages, and effective, though cheap. Some of these can be fixed for less than £1; one costs only nine shillings, and can be fitted in by any working man who has got a pair of hands worth having. The householder who has introduced one of these between his own drain and the common sewer, ought to feel at ease, having met his enemies in the gate and conferred upon his dwelling an insular security, by drawing round it a diamond cincture of pure air—as strong a barrier against invasion as the silver streak of sea.

But the outer defences must not absorb attention to the neglect of the inner ones, and of the efficiency of the garrison. We must not be content with having cut off our domestic drains from contaminating communications with the town, but must look carefully to their private character and dispositions, for, like the human heart, they are corrupt by nature and prone to wickedness. Few houses are there that have drains free from original defects. No houses are there, in which the drains will not go wrong if left entirely to themselves. Mr. Rogers Field found only three righteous houses out of 1,000 which he examined, and Mr. Rawlinson has detected grave faults in dwellings of every class, from Windsor Castle to a common lodging-house. We must search our drains and try them, and reform them where they are amiss. We must see that they are well inclined, so that there is no lodgment of solid matter in them; that they are open and ingenuous, so that there is no detention of stagnant air in them; that they are sound-hearted and honest, so that there is no leakage from them; that they are cut off from temptation which might lead them to pollute drinking-water or food; and that they are subjected to examination periodically, so that evil tendencies may be checked in time. Upon each of these points I shall have something to say.

"Look upon this picture and on this, the counterfeit presentment of two houses," in one of which all the sanitary arrangements are as bad as bad can be, and in the other of which sanitary defects have been avoided. In the latter of these a man may lay himself down in peace to sleep, rocked in the cradle of sanitary confidence, but, as

Daylight for the Million.—Adopt Chappuis' patent, 69, Fleet street.—[Advt.]

regards the former, I can only say that it would be safer in the long run to live in a turf hut, with a hole in the roof for a chimney, and amongst the dogs and hens and pigs, than in a mansion of this kind, although elegantly decorated and made beautiful by Mr. Oscar Wilde, and at a rent of £300 a year. It is just a seminary for the cultivation of typhoid fever. . . . .

The drains, even when carefully secluded from the town sewers, are still apt to fall into bad company, and their worst associates are rats. I daresay some of you have been told that rats are beneficent little creatures—volunteer scavengers, industrious in cleaning away garbage from drains. Do not believe that. In honest drains there ought to be no garbage for rats to eat. It ought to be impossible for the most frugal rat to get a living, and you may depend on it that, in nine cases out of ten, the presence of rats in a house means also the presence of drain gases, which they have brought with them from below. Where a solid rat can come a subtle gas can follow, and the only good that a rat ever does is to give warning that the enemy is in his rear. The most common way in which rats gain admission for themselves and the drain demons to a house, is by eating out of an old brick drain, or through the joints of stone drains, or through the patches of mortar that have been laid on flaws, in seconds, as they are called, or cheap and nasty earthenware tubes. Having once made their way in, they construct runs in all directions, under floors and up walls, and sometimes directly under drains, which, being thus deprived of support, subside, fracture, and afford fresh outlets for drain air.

When, however, a house is provided with sound sanitary pipes, which they cannot nibble through, the rats most frequently effect an entrance by a scamped joint, as they may be seen doing in this illustration by Mr. Pridgin Teale, in which we have a party of rats emerging from the opening round a sink waste-pipe, where it joins a drain under a kitchen floor, instead of discharging, as it ought to do, over an open gulley outside. The sink-pipe, religiously trapped, passes through the kitchen floor, but beneath the floor it dips into an open wide-mouthed drain-pipe, 4 in. to 6 in. in diameter, and is either left without luting, or surrounded with common cement that is easily munched away, and so the rats ascend and hold high festival in the kitchen and basement, bringing with them vapours that are not odours of Araby the Blest, but that often give a sickly smell to sunk floors. Another way in which rats demoralise drains is by eating through lead soil-pipes. Faultless, well-glazed earthenware or iron drain-pipes, with perfect joints—these are the best protection against the inroads of rats; and of course the appearance of a rat should be the signal for an exploring expedition into the subterranean regions. This country did very well for centuries without the brown Hanoverian rat, which is now a wide-spread pest, and sanitary reformers would gladly see it exterminated, as an inveterate enemy to drain morality. Shylock surely betrayed a becoming appreciation of the value of sound sanitation when he said: "What, if my house be troubled with a rat, and I be pleased to give ten thousand ducats to have it banned?"

(*To be continued.*)

Scott's Midlothian Oat-Flour.—Messrs. Scott, of 82, York-street, Glasgow, have prepared a singularly pure and nutritious "Oat-flour," which bids fair to take high rank among the food products which are specially adapted for infants and invalids, and for the use of dyspeptics in particular, whose digestion is weak, and whose stomachs refuse to assimilate foods of ordinary kind.—Ed. Health.—[Advt.]

The Family Circle

"The child is father of the man."—*Wordsworth.*
"In bringing up a child, think of its old age."—*Joubert.*

ECONOMICAL BREAKFASTS, DINNERS, AND SUPPERS.

By Mrs. Thwaites, of Liverpool.

NINTH PAPER.

Dinners.—*Steamed Fish and Sauce.*—Two to three pounds of cod or hake (the latter is a fish which deserves to be better known than it is). Thoroughly wash and dry it, and place in a steamer. Allow, for a thick piece, twenty-five minutes to the pound. A good substitute for a steamer is a deep earthenware dish or bowl, which is set into boiling water and covered with a greased paper. Sauce: When the fish is taken up, there will be about a teacupful of liquor in the steamer; add to it as much water as will make it up to half-a-pint. Put one ounce of butter, the same of flour, into a small pan; when well mixed over a gentle heat, add the half-pint of liquid; stir carefully until boiling-point is reached; then beat one yolk of an egg in a basin; add to it half a teaspoonful of salt, quarter teaspoonful of pepper, two teaspoonfuls of capers chopped, or half as much parsley; pour the hot sauce slowly into the basin, stirring well all the time; add a little vinegar. Serve hot with the fish.

Fish Patties.—Three-quarters of a pound of cold potatoes; mash them by rubbing through a wire sieve; season lightly with salt and pepper; add a raw egg, and beat thoroughly. Grease small patty tins; press the mashed potato in to form a lining; use a little flour to prevent sticking. Pick about one pound of cold fish—any kind will do—quite free from skin and bone. Make half-a-pint of sauce like that in the previous recipe; stir in the fish; fill the patties; cover either with more mashed potato or sprinkle with bread-crumbs; put a few little bits of butter over; set into a hot oven, and bake for ten to fifteen minutes. Serve in the tins, garnishing with a little parsley.

Boned Breast of Mutton. — Choose a small breast of mutton, not very fat. Do not let the butcher crack the bones. Trim off all the fat that lies on the outside, and then insert a small, sharp-pointed knife under the ends of the ribs, detach the flesh, always keeping the knife close to the bone. A little practice will enable anyone to do this well. The bones make excellent soup. The meat must be beaten flat with a rolling-pin. Spread with the following mixture:—A ¼ lb. stale bread-crumbs; 2 oz. of fat bacon cut into small dice, or of suet chopped; a teaspoonful of chopped parsley; half-a-teaspoonful of mixed, powdered, sweet herbs; a teaspoonful of salt; one-third teaspoonful of pepper; a pinch of grated nutmeg, and one of cayenne; a little grated lemon-rind. Mix these ingredients with either an egg or a little milk; if milk, put in ½ oz. of flour, which will help to bind the whole together. Spread over the meat, roll up, and tie securely with tape; put it into a saucepan, with a small onion, carrot, a little sprig of parsley, and a tiny bit of mace; add water that will just cover the meat, cover the pan, and simmer slowly for two hours. Take up the meat on a dripping-tin, put a

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few spoonfuls of the gravy round, brown it all round quickly; this should be done either before a clear fire or under a gas deflector. While the meat is browning, remove all the fat from the gravy; this is first done by skimming with a spoon, then taking small pieces of kitchen paper and placing lightly on the gravy, any grease there may be is at once absorbed. Brown one ounce of butter in a small pan, add one ounce of flour, brown lightly also, add half a pint of the gravy, let it boil, season with salt and pepper, and add a tablespoonful of ketchup. Remove the tape from the meat, place on a hot dish, pour the sauce round. This dish can be varied by spreading the following forcemeat over:—Five or six onions boiled in salted water, then chopped; one teaspoonful of finely-powdered sage; three ounces stale bread-crumbs; salt and pepper. Apple sauce should be served as an accompaniment.

Curry of Mutton and Macaroni.—Dishes flavoured with curry powder may be eaten with safety occasionally, and indeed are to some extent beneficial. Care must be taken that they are not made too hot. The following is a simple and economical way of preparing a dish of curry:—Slice two small onions, brown them lightly in a saucepan with an ounce of dripping or butter; mix one teaspoonful of curry-powder with one ounce flour, stir this into the saucepan, and fry for a minute; add one pint of water, stir until it boils; cut up into quite small pieces three-quarters of a pound of mutton, put it into the gravy; add three-quarters of a teaspoonful of salt, the juice of a lemon, or a tablespoonful of vinegar; *simmer* for half an hour, then put three ounces of straight macaroni, broken into convenient pieces, simmer again until the macaroni is quite soft.

Vegetarian Goose.—A good-sized vegetable marrow; wash and dry it, but do not cut the skin. Scoop out the seeds. This is done by putting a long knife down the middle of the marrow and turning it around several times—it should be done from both ends—the seeds will then drop out. Have ready a pan (a fish-kettle with drainer answers best), containing enough boiling salted water to cover the marrow, put it in and boil until partly soft but not in the least broken, take it up carefully and fill with the second stuffing given above for breast of mutton. Let it be quite full. Grease a tin, place the marrow on it and pour over it the following sauce:—Fry a small piece of onion minced in 1 oz. of butter, add 1 oz. of flour and half-a-pint of water, stir until it boils, season it and pour over the marrow, sprinkle with stale bread-crumbs. Put a little dissolved butter over and bake half to three quarters of an hour.

Rice and Tinned Fruit.—Wash six ounces of rice well, put it into a pan with a pinch of salt, half-a-pint of cold water, and one ounce of butter; cover the pan, and cook slowly over a very gentle heat; when the rice is dry add one-and-a-quarter pint of milk; cook again slowly until the milk is absorbed; sweeten with two ounces of sugar and any flavour liked; when the rice is nearly cold put it round a dish, keeping it as high as possible. Take half-a-tin of any of the tinned fruits now so common—peaches, pears, apricots, &c. The fruit in many of the cheaper brands is too sour and hard to be used without cooking. Put with it enough of the juice to cover it, and sugar to make it pleasantly sweet. Stew slowly for half-an-hour; when cold put in the centre of the rice. A pretty garnish is made by whipping white of egg to a stiff froth; then have a small pan with half-a-pint milk slightly sweetened, brought up to boiling-point. Put spoonfuls of the white on the hot milk. It is cooked in about two minutes, and will be light and spongy. If cooked too long it becomes tough. Lift this up carefully, drain the milk from it, and place it over the fruit. Sprinkle with pink sugar.

Scott's Midlothian Oat-Flour.—There is no preparation which can be assimilated with greater facility than such a flour as this. Those who suffer from indigestion might substitute for their ordinary breakfast materials this flour, prepared according to the recipe given by Messrs. Scott and printed on the tins.—Ed. Health.—[Advt.]

The "Boncontour" Stay-Belt and other Orthopædic Apparatus, made by K. R. Schramm, Orthopædic Mechanician, 64, Belmont-street, Chalk Farm-road, London, N.W.—[Advt.]

CARE OF SICK PATIENTS.

A writer in the Boston *Traveller* gives some practical hints in ministering to the sick which are worth heeding. To be a good nurse requires a rare combination of excellences in the same individual — intelligence, physical strength, a kind disposition with firmness, a light hand and foot, courage greater than that which animates the soldier on the battle-field, and, above all, untiring patience. Given these, and the nurse becomes more than half the remedy; not only inspiring confidence on the part of the patient, but of the surgeon or physician also, who can rely that his instructions will be carried out with implicit obedience to the letter.

Such a paragon, however, is rarely to be met with, except as an emissary from one or another of those admirable institutions where ladies are trained under skilful management for this work; and in a vast majority of cases an invalid is placed in the hands of his immediate friends or relations, who, with the best intentions, it must be confessed, often prejudice his comfort and retard his recovery by the very over-anxiety which is bred of affection.

The writer, after penning the above, proceeds to enumerate a few small points which should be avoided, as tending greatly to the discomfort of the patient, and for the guidance of those who, without previous experience, find themselves suddenly thrust into this most responsible position. Quietude is a great thing, of course, but real quietude means the absence of all excitement, and it must be remembered that anything out of the common will tend to excite the mind of a sufferer. Do not, therefore, walk on tip-toe, for this, in addition to its unusual elaboration of the gait, invariably causes a certain amount of creaking. Speak in low tones, but don't whisper. A whisper will often awake a sleeper who would not be disturbed by an ordinary conversation; and never say "hush!" Let your clothes and foot-covering be of as noiseless and unobtrusive a character as possible, and instead of gliding and tottering about like a rickety ghost, do not hesitate to walk. If you have occasion to say anything in the room, say it so that the patient can hear it if he wishes, and do not let him be aware of your conspiring privately with the others, especially at the door.

That door has much to answer for. If it be visible from the bed, people open it cautiously, put their heads in, and slowly withdraw again. If, as is more frequently the case, it is screened by the bed-curtains, mysterious openings and shuttings are heard, unattended with any apparent ingress or egress, and *sotto voce* colloquies going on outside. When you enter, do so honestly and at once. Do not spend five minutes in turning the handle, like a housebreaker, thereby producing a series of irritating little clicks, finally terminating in a big snap, with which the door flies open. If the latch be at all rusty, a handle that is slowly wound back in this way will often stick, and either require to be rattled back in position, or, if left as it is, may start back suddenly, after a time, of its own accord, with a report like a pistol-shot.

While talking to him it is better to sit by the side of the

bed and as near the pillow as possible, so that you may converse easily, while your face and body are turned in the same direction as his. By this means you can make all necessary observation of his features without enforcing the arrest of his eyes to your own, which is so embarrassing and disagreeable to one lying in bed, and is almost unavoidable when facing him. Keep him in as comfortable a position as possible, by all means, but don't be too demonstrative in smoothing the pillows and little offices of that sort. Fidgety attentions will worry him, and do him more harm than downright neglect.

Cinders in the Eye.—One of the minor trials in railway travels arises from cinders in the eye. A simple and effective cure may be found in one or two grains of flaxseed, which can be placed in the eye without pain or injury. As they dissolve, a glutinous substance is formed, which envelopes any foreign body that may be under the lid, and the whole is easily washed out. A dozen of these seeds should constitute a part of every traveller's outfit.—*Popular Sc. News.*

Hereditary Disease.—The problems of the hereditary transmission of qualities and tendencies to disease are some of the most wonderful in nature, and they are as yet by no means clearly elucidated. Many of them, as yet, cannot be brought under any law. In our present state of physiological knowledge, it is, for instance, a quite inconceivable thing what takes place when we have two generations of perfectly healthy persons intervening between an insane great-grandmother and an insane great-grandchild. The grandparent and the parent carried something in their constitutions which was never appreciable to us at all. Yet it was there just as certainly as if it had broken out as a disease. It is one of the future problems of physiology and medicine to deduce the exact laws of heredity in living beings, and to counteract the evil hereditary tendencies through conditions of life. To do the latter we shall undoubtedly have to begin early in life, and we shall have to control the education especially, and make it conformable to nature's indications, laws, and conditions.

A Cat and a Doll Spreading Diphtheria.—It may be remembered that a good deal of prominence was given last autumn in the papers to the occurrence of diphtheria in a family in Amsterdam, New York. Two children died at intervals of several months, and a third was taken sick. The Board of Health appointed a committee to investigate, which examined the house and its surroundings and obtained a statement from the attending physician. They have recently made their report, finding that there were no bad conditions existing in or about the house sufficient to explain the appearance of the disease, and they conclude that it came from a cat which was fondled by the child which first felt ill. This cat was found at the time to have a swollen throat and to be suffering from a discharge from mouth and nostrils. It died a few days afterward. Three days after the death of the cat the child fell sick with malignant diphtheria, and died in about a week. During its illness it played with a doll, which was afterward given to a younger child, as it was supposed to have been properly fumigated with sulphur fumes. This child, shortly after being allowed to play with the doll, also fell ill of diphtheria and died. The third child also played with the doll and fell ill, but recovered. The Board of Health, therefore, traces the reappearance of the disease in the family after the death of the first child to the doll.—*Sanitary Engineer.*

Jottings from the Journals

"Th' ingredients of health and long life are
Great temperance, open air,
Easy labour, littl· care."—*Sir Philip Sidney.*

Menthol.—Several years ago, Mr. L. Genois writes in the *Polyclinic*, there appeared in the American drug-market an oil of peppermint, put up in long, narrow, stout, glass vials enclosed in pasteboard boxes, decorated with Chinese or Japanese characters. This article was sold under the name of menthol, or Japanese oil of peppermint. It was recommended as a specific for many nervous affections, met with great favour within a short time, and although not widely known, it found quite an extensive sale. Suddenly, however, and when it seemed that a steady demand was created, it disappeared from the market, and has since, as far as M. Genois' experience goes, been unobtainable. Seemingly, as a substitute for it, there has recently been introduced the stearoptene, or crystalline solid, separated by fractional distillation of peppermint-oil. It is claimed to be prepared only from Japanese mint, *M. arvensis* var. *purpurescens*. This "menthol"—the only product to which the name belongs—is an alcohol. It is also called mint camphor. It is the active and odorous principle of peppermint-oil, is a snow-white, crystalline solid, freely soluble in alcohol, ether, chloroform, carbon, disulphide, oleic acid, and most essential oils. When pure, it is not oily, and distils entirely, without decomposition, at 212 deg. C. From a circular issued by Messrs. Cocking & Co., of Yokohama, it appears that menthol was first made known in Europe fifteen years ago. Its Japanese name is *Hakka No-Sei* or *Hakka Hari*. It has been used in Japan for nearly two centuries. The consumption of it there is now very large and constantly increasing, it being employed for headache, &c., much as we employ smelling-salts. It is most extensively used, however, in the form of a powder called *Hotan*, consisting of menthol, salep, cloves, crab's eyes, musk, &c. In England, crystals of menthol, compressed or moulded in cones, have for some time been sold for local use in facial neuralgia and headache, in which we can state that it has repeatedly proved of great service. It has antiseptic and germicide properties. Dr. Cutter, of New York, has called attention to its use in epidemic influenza. A convenient way of giving menthol is by inhalation; any simple form of inhaler can be used. It can also be administered by an atomiser, a solution of four grains in an ounce of warm water being used. Menthol is now being manufactured by Wyatt Brothers, of New York, in the form of neat compressed pencils, for local application. These are put up in holders of about two inches in length. Dr. J. C. Wilson has had made a menthol stick cosmetic, with the active ingredient massed at one end; this is also a convenient form for use. The proportion of menthol contained in Japanese oil of peppermint is greater by far than that in American or English, amounting in some cases to nearly 66 per cent. Many uses for this agent will suggest themselves to physicians, but it has so far been little employed, owing, no doubt, to its comparative scarcity and consequent cost; but arrangements are now being made to give it a wide distribution, and in a short time it will take its place as a regular remedial agent.—*British Medical Journal.*

Displacement of the Brain.—At the Académie de Médecine, M. Luys made an interesting communication on the displacement of the brain in the different attitudes of the body. According to him, the cerebral or brain-mass, which does not completely fill the skull-cavity, follows the

position of the head, and in this it is facilitated by the lubricity of its coverings. In the horizontal position and upon the back, the brain falls by its weight on the occipital or hinder head-region, leaving an empty space in front; when lying on the face, the empty space is behind; while in the vertical position, the cerebral (or brain) mass "settles down." These movements are entirely automatic, the brain moving by its own weight; and M. Luys considers that the vertigo (or giddiness) so frequently observed in convalescents when they pass suddenly from the horizontal to the upright position is mainly due to this mobility of the brain. Sea-sickness would derive its origin from the same cause; the rapid and successive shocks experienced by the brain from the rolling of the boat produces this special state of nausea, hence the advantage of keeping the horizontal position until the phenomenon wore off. The intense pain experienced in meningitis (or inflammation of the brain-membranes) was produced by the inflamed membrane hindering these physiological movements of the brain. Individuals the subjects of heart affections or brain-congestions suffer frequently from giddiness and dulness, or even apoplexy, in substituting the vertical for the horizontal position. In fits of coughing, and especially such as are witnessed in whooping-cough, the brain is, so to speak, projected against the cranial vault, producing that special kind of painful phenomena which is so often accompanied by serious trouble in children.—*Medical Press.*

The "Ceylon."—The Ocean Steam Yachting Company intend on or about May 24 to despatch their steam yacht, the *Ceylon*, on a three weeks' cruise to the Atlantic Islands, during which a four days' stay will be made at St. Michael's, Azores, where is situated a large bathing establishment, the property of the Portuguese Government, the use of which is free and unrestricted, and is said to be especially valuable in cases of cutaneous disease and ulcerated sores. A pamphlet issued by the above-named company represents one of these springs as cold, containing muriatic, sulphuric, and carbonic acids, with iron, alumina, and magnesia; strongly impregnated with carbonic acid, extremely agreeable to the palate, possessing strong digestive powers, and creating an almost immediate appetite. Another has a powerful acid quality; a third a sharp, saline, bitter flavour. Agua azeda comes out of the rock deliciously cool, though immediately adjoining it are hot ferruginous springs. The appearance of the water in some cases is limpid and transparent, in others turbid, of a white, blue, or reddish hue, depositing a red or blue clayey substance.—*Lancet.*

Prof. Voltolini, at Breslau, recommends a gargle composed of four parts of muriatic acid and two hundred and forty parts of water to remove fish-bones from the throat. The teeth have to be protected by lard or oil. The fish-bones become flexible, and they disappear entirely after a short time.

Method of Preserving Flowers, Leaves, and Other Parts of Plants.—German patent No. 23,792, issued to J. L. Wensel, in Berlin, covers the following process:—The respective parts of the plant are coated with a solution of shellac or resin until they are perfectly dry. The moisture completely escapes after some time through the fine fissures of the coating. Finally, the coating is removed by the cautious use of alcohol, whereupon the organs will present their original sharp outline. If it is desired to give them a better appearance, they may be coated with a thin layer of an adhesive varnish and dusted with a suitably coloured metallic bronze powder.

Our Bookshelf

"Reading maketh a full man."—*Bacon.*

A MOTHER'S BOOK.

Nursery Hints; a Mother's Guide in Health and Disease. By N. E. Davies, L.R.C.P., &c. (London: Chatto & Windus.) 1884.

Mr. Davies has followed up his "Medical Maxims" by the present volume, in which he has adopted the same paragraphic style. The work before us is likely to become popular from the fact that the information is given in plain, untechnical language, and is conveyed in terms which every mother may understand. The subjects treated are divided into a number of conveniently-arranged headings, ranging from birth onwards to childhood. The treatment of infantile diseases occupies a large part of the work; and a useful "appendix," detailing remedies adapted for children, and giving recipes for nursery and invalid cookery, is also included within its limits. Not the least important part of the work is the "Index," which renders this excellent shilling's-worth of handy information still more valuable as a manual of easy reference. The quality of Mr. Davies' matter and the author's style may be judged from the following extracts, which form a fair sample of the work as a whole:—

Rest and Sleep.

358. A child should sleep in a cot or bed by itself, in the room of its parent or nurse; by this means any illness coming on in the night will be detected by the restlessness or delirium of the little sufferer.

359. From the age of two months to five years, a child requires twelve to fourteen hours of sleep in the twenty-four, and should have it.

360. From the age of two until four, a child requires a midday sleep from eleven to one; otherwise it will become fretful towards the afternoon, from brain weariness.

361. After five a child should go to bed at seven, and get up at seven in the morning; should sleep on an iron bedstead, and on a firm wool or hair mattress.

362. A child should not be put to bed immediately after a full meal; the sleeping-room should be darkened and kept quiet, and the child laid on its right side. (See 118.)

363. Rocking a child causes sleep by inducing cerebral congestion, the motion causing a congested state of the vessels of the brain; it is needless to say that this cannot be salutary.

364. Under no circumstances should a child be accustomed to soothing sprups or soothing powders to procure sleep. These are the resources of indolent and unfeeling mothers, and the causes of many deaths, or, more correctly speaking, murders.

365. Children that are accustomed to regular hours each day and night for sleep, do not require such adventitious aid.

366. A child should never be allowed to remain up late; it exhausts the nervous system, and induces habits of sleeplessness.

367. Want of sufficient clothing, over-feeding producing flatulence and indigestion, are the common causes of wakefulness, to which may be added worms, teething, and fevers coming on.*

The following remarks on the use of the clinical thermometer in the early detection of disease are also worth reproducing:—

410. The clinical thermometer predicts fever and dangerous illness, such as bronchitis, inflammation of the lungs or bowels, as a barometer does a storm.

411. The temperature of the body in health is a little below 98½ deg. F., marked on the thermometer with an arrow; when the heat of the body at rest exceeds 100 deg., or falls below 97 deg.,

* In persistent sleeplessness of young children, the only safe sedative is the bromide of potassium; the dose is a grain for every year of life; thus a child three years old would require three grains at bedtime in sweetened water. This leaves no after ill-effects, but it must be remembered that there must be some cause for this sleeplessness, and the cause should be sought for and removed or remedied.

excepting under very rare conditions, danger may be apprehended, and medical advice should be sought without delay.

412. In using the thermometer, the bulb should be placed in the armpit, next to the skin, and not touching any article of clothing, and the arm drawn over the chest; it should be kept there for four or five minutes, then the temperature of the body read off, and the mercury brought down again to the arrow by gently tapping the thermometer against the palm of the hand.

413. If the temperature reaches 103 deg., inflammatory action, fever, or constitutional disturbance is severe; 104 deg. or 105 deg. very severe, 106 deg. very dangerous, and 107 deg. usually fatal; and when it reaches 108 deg., death may be expected within twenty-four hours. These figures refer to both sexes alike.

414. By this means a mother may often allay unnecessary fear, and where real mischief is coming on, "to be forewarned is to be forearmed"—and what thus might become a serious or fatal attack may be "nipped in the bud."

Altogether, Mr. Davies may be congratulated on having added a singularly trustworthy "mother's book" to the list of health-manuals at present in the market.

AN AMBULANCE MANUAL.

Ambulance Handbook for Volunteers and Others. By J. Ardavon Raye, L.K. & Q.C.P.I., &c. (London: J. & A. Churchill.) 1884.

Mr. Raye's book consists of the materials he had compiled for a course of lectures intended to be delivered to an ambulance class in connection with the East Indian Railway Rifles, in anticipation of their being called to the recent Egyptian campaign. The class was never formed, "owing to the men's arduous duties preventing"—a matter of some regret, seeing that the kind of knowledge Mr. Raye dispenses is of the most useful nature to all, whether soldiers or civilians. This little work is illustrated by sixteen lithographic plates, executed by the author. We regret we cannot extend to his artistic efforts the same meed of praise we may, on the whole, bestow on his literary labours. Many of the cuts are rough and sketchy, and do not render plain the points they are intended to illustrate. Thus, in plate I., the details of the superficial anatomy of the head and neck are conveyed in anything but distinct fashion; the plate attempting too much, and the chief points therein being obscured. Fewer details and mere outlines would have fulfilled the author's purpose in a more satisfactory manner. In plate V., these objections are still more forcibly exemplified, We defy anyone unacquainted with the subject to make head or tail of the heart as diagrammatically represented therein. A mysterious mark in the middle of the organ seems entirely out of place, and the two-sided character of the heart is entirely unrepresented in the plate The references to this plate are also by no means clearly indicated. In plate VIII. the outlines of the bandages would bear intensifying; and the illustration of the stick-tourniquet in plate XIV. is somewhat obscure.

Some fifty pages of this manual are occupied by a sketch of the general anatomy and physiology of the body. In our experience such introductory details are apt to be entirely forgotten when they are made purely prefatory in nature. If Mr. Raye should deliver his lectures, we should strongly advise him to omit all reference to such topics as digestion and absorption, and intersperse his anatomical details amongst his ambulance instruction. A pupil is much more likely to remember what arteries are and where they lie, when he is being instructed in the art of arresting bleeding, than when he hears these topics merely lectured upon in a preliminary dissertation. The ambulance instruction itself is conveyed, for the most part, in clear language. The section on "noxious gases" is, however, meagre; and, curiously enough, the important subject of "choking" is treated of under this latter head, and cursorily dismissed in a few lines. No mention is made of the valuable hint to make a patient with a foreign body in his windpipe lie or rest in such a position that the air may pass by the obstruction to the lungs.

We have known a case in which such an obstruction, which blocked up the air-passage completely when the person sat upright, and threatened to choke him, wa rendered comparatively harmless when the patient lay on his side; air being then admitted past the object, which shifted its position and thus enabled him to breathe freely till a surgeon arrived. The definition of choking given by Mr. Raye as "caused by food, bones, or other matters lodging in the *throat*" is susceptible, we think, of improvement. Choking is really caused by obstruction of the air-passages, not of the throat.

In detailing the treatment of the apparently drowned, Mr. Raye might have added that the tongue can be permanently kept drawn out of the mouth, as desired, by means of an indiarubber band passed over the organ and under the chin. He omits to mention the important advice to rub the limbs (and veins) *upwards*, with warm flannels or the warmed hands. But for these slight omissions and the defective character of the illustrations, Mr. Raye's book would have ranked highly as a manual of ambulance instruction. As it is, however, it contains much useful information pleasantly conveyed.

International Health Exhibition.

LONDON, 1884.

TENTH PAPER.

MEMORANDA FOR THE GUIDANCE OF EXHIBITORS,

METEOROLOGICAL.

It is desired to illustrate as far as possible the relations of meteorology to health, and for this purpose a special Sub-Committee has been formed. The classification is given on page 14.

It is hoped that the Royal Meteorological Society will establish a Typical Climatological Order Station, provide the complete equipment, and supervise the same. This will be arranged on a level grass space about 30 feet square, which space will be railed in, and provided with a gate through which a limited number of the public can from time to time be admitted.

The attendant will take daily observations from the instruments, which will be exhibited in diagrams, and a copy of them furnished to the Editorial Department of the Exhibition, for publication in the daily programmes, and also as a communiqué to the Press.

It is hoped that a series of large diagrams illustrative of the climatal conditions prevailing in various parts of the world may be exhibited.

Besides the collective exhibit above described, space will be provided for the exhibition of instruments by manufacturers, inventors, and others, who may desire to show them. Attention is particularly directed to the fact that the Committee specially invite the exhibition of meteorological instruments bearing upon the relations of Climatology to Public Health.

The Committee also appeal to authors of papers upon the relations between health and disease, rainfall, percolation, evaporation, and flow from the ground, and others subjects embraced by the Exhibition, and invite them to exhibit diagrams, models and apparatus illustrative of their researches.

It should be borne in mind that instruments which are not considered to come within the scope of the Exhibition, as bearing on the relations between Meteorology, Climatology, and Health, will not be held admissible.

Among those which it is considered desirable to show may be mentioned:—

- Barometers.
- Aneroids.
- Thermometers.
- Earth Thermometers.
- Thermometer Stands.
- Hygrometers.
- Anemometers.
- Airmeters.
- Rain Gauges.
- Automatic Meteorological Apparatus.
- Sunshine Recorders.
- Evaporation Gauges.
- Ozone Papers.
- Ozonometers.

Makers are requested to confine their exhibits for the most part to instruments of their own manufacture, and not to multiply examples of identical, or nearly identical, instruments.

INDIA.

The object which this Sub-Committee think should be kept in view in considering the arrangements for the Indian Section of the Exhibition is the illustration, in as vivid a manner as possible, of the actual life of the masses of the people of India, as regards the three especial objects of the Exhibition, their Food, their Dress, and their Dwellings, also, but to a less extent, their Education.

The Committee feel that they must not rely solely on contributions from India, but that they must also expect the aid both of traders and of private individuals in England, in securing an effective Indian display. They are, therefore, anxious that it should be distinctly understood that applications for space from Indian traders in England will be readily considered, provided, of course, that the proposed exhibits are of a character suitable for the Exhibition.

As regards Group 1, Food, it will be desirable that there should be complete collections of the ordinary food of the people in some selected districts of each principal province. Where possible, it would be desirable to have the prepared food itself; when this cannot be done, the raw materials and models might be shown. Thus, for a Deccan district, samples of bajra and jowar, the chief grain foods, of wheat, dhal and pulses, and of the flour as prepared by the natives for use; models of the chowpattis or loaves; then the condiments, salt, pepper, pickles, &c., as actually used; ghi, gur, and sweetmeats, with the grindstones, models of "chulas" or cooking stoves and the like; cooking pots, dishes, &c., as used. For a coast district, rice in its various preparations, salt and dried fish, &c.

Specimens also of Indian food-stuffs imported in this country are desired, as well as specimens of the various condiments, pickles, preserves, &c., manufactured either for European or local use. Models of edible fruits, especially those known in this country in a dried state, would be useful. Also representations or stuffed specimens of animals and fish used as food.

Any illustrations of the processes of preparing rice, tea, coffee, &c., would be welcomed.

It would certainly create great interest here if a few native cooks could be brought over, with plenty of materials, who would cook daily, for sale, say a good Mussulman dinner and a good Hindu dinner, with accompaniments such as are used at caste feasts, weddings, &c.

As regards Group 2, Dress, the most important thing will be to show the clothing, &c., of representative classes in representative districts of each province; thus, from Bombay there might be a Gujerat patidar, a Deccan banya, a Konkan fisherman, a Borah trader, a Parsee merchant—with their women: from Bengal and Madras, similar typical examples. The dresses should be shown on lay figures, and should be the ordinary habiliments of the people, with their ordinary ornaments, also with charpais, kamlis, rasais, &c.

Exhibits illustrating the construction of Indian fabrics, and specimens of any fabrics of special interest are desirable, also illustrations of silk culture, especially tussur.

In Group 3, the Dwelling, possibly there might be exact models of the better class of houses in representative districts (say of a cultivator of the better class, a banker, a shopkeeper), of the cottages of the lower classes, the huts of weavers, fishermen, &c., of European up-country bungalows, and of a bit of a bazaar in an up-country town. With these models should be shown small figures, dressed to represent the people at their usual avocations; models of their furniture and of their domestic animals might be put into their houses.

Models of native schools, and any matters connected with the education of the people, would be acceptable.

Punkas, tattis, and thermantidotes should be admitted, and other means of cooling air, drinks, &c., also means for carrying and preserving water.

If, besides the cooks above mentioned, other Indian workmen could be brought over, potters, blacksmiths, weavers, clothworkers, embroiderers, silversmiths, &c., it would form a most interesting feature in this Exhibition, and as illustrating the life of the people of India, possibly not an unsuitable feature.

NOTE.—The above are the only Memoranda at present issued; others will be inserted in subsequent editions of this prospectus.

SANITARY INSPECTIONS.—Fee for Survey and Report, in London, 2 Guineas. Estimate given and Improvement Works carried out when required.—THE SANITARY ENGINEERING CO., 115, Victoria-street, Westminster, S.W.—[ADVT.]

Sanitary Appliances, Etc.

MESSRS. TYLOR & SON'S CATALOGUE.

MESSRS. TYLOR, of 2, Newgate-street, London, E.C., have forwarded a copy of their new Catalogue of Sanitary Appliances. This list, which is fully illustrated, contains details of a very complete assortment of every description of sanitary work. Those who are intending to make any alterations in the closet or pipe and drain fittings of their houses cannot do better than consult Messrs. Tylor's catalogue, which, indeed, presents us with a very full statement of the latest improvements in sanitary apparatus extant. Their stock of baths and fittings strikes us as being singularly complete, whilst, as regards the less important items of sanitary work, Messrs. Tylor's care and supervision are seen to be thoroughly exercised.

Our Letter : Box

"Conference [maketh] a ready man."—*Bacon.*

NOTICES TO CORRESPONDENTS.

All Communications for the Editorial Department (including specimens of Sanitary Appliances, &c.), to be addressed to "THE EDITOR OF HEALTH," 74-76, Great Queen-street, London, W.C. Those intended for the Publishing Office to be sent to "THE PUBLISHER," at the same address.

Contributors are requested to send stamps for the return of the MSS. in event of non-acceptance. Every care will be taken to ensure the safety of MSS., but the EDITOR and PUBLISHERS cannot hold themselves responsible for accidental loss.

Correspondents are requested to write on one side of the paper only. The EDITOR disclaims responsibility for the opinions expressed by Correspondents.

LETTERS TO THE EDITOR.

DISEASE GERMS IN WATER.

SIR,—I cannot expect to convert the Spongy Iron Domestic Filter Company to my views on filtration, as if I did they would not sell many more of their filters. It cannot be a matter of very much importance to me whether they "take notice of my letters" to you or not, as I do not write for them, but for the benefit of the public, who wish to know whether they can have confidence in any system of filtration for removing from water the germs of disease that may be in it. But, says the S. I. D. F. Co., How can Mr. Maignen remove from water "a variety of germs which no one has ever seen?" Well, I will leave the S. I. D. F. Co. to settle the riddle. What I profess and guarantee my patent "Filtre Rapide" to do is to remove all the known germs of disease—the "spheroidal corpuscules" of Professor Burdon Sanderson; the bacillus of cholera discovered by Dr. Koch; the bacillus of tuberculosis—which, according to Mr. Jabez Hogg, is "a distinct organism altogether in shape, character, and life-history from the ordinary bacterium known to microscopists"; the bacillus of splenic disease; the spirillum of relapsing fever; and, in fact, everything that has a body, be it ever so small. I would be prepared to stake a sum of money, to be forfeited for the benefit of some charitable institution, if I could not prove the above assertion. Mr. John J. Pilley, who has investigated the action of my filters in an independent manner, has given you the result of his experience, proving that impurities in solution, such as lead, iron, and sewage, and even ammoniacal gases, are removed from water by my process.

The *Engineer*, of March 7, 1884, alluding to my filters, says:—"The filtering material used is not, however, simply a mechanical strainer. Carbon so finely divided has properties of a chemical or chemico-physical* character, which enables it to act, as is proved by experiment upon organic and inorganic matter in solution . . . . Whatever the cause or combination of causes," continues the *Engineer*, "the result is as stated, and this great efficiency has caused the War Department to send out to Egypt the form of the filter illustrated."

If the S. I. D. F. Co. cannot conceive that a filter which removes from water, sewage in solution, is also capable of removing "all forms of organic life of the nature of bacteria," I am afraid they must have a dull comprehension.

* I regret that in my former letter a slight mistake was made in saying physical for chemico-physical.

I would be content to rest my case on the mechanical separation of the bacteria from water, because in my filters they are periodically thrown away with the filtering medium which has arrested them, and because I know that, alive or dead, they cannot pass through the layer of finely-powdered carbo-calcis which forms the essential part of my filters. In other filters, such as those supplied by the Spongy Iron Company, the passages between the particles of iron, charcoal, and sand are comparatively so large that the bacteria gradually find their way through into the filtered water-chamber.

It is incorrect, as stated by the S. I. D. F. Co., that the pores between the particles of filtering medium used in my filters are larger than those of the earthenware cylinders used by M. Chomjakon. I am glad to see that the S. I. D. F. Co. bears witness to the fact that the filtration by my process goes on "under comparatively no pressure." The rapidity in my filters is depending entirely upon the multiplication of the filtering surface. Over a given area, the filtration is slower in my patent Filtre Rapide than in the spongy iron filter, but the filtering surface in the same space is from fifteen to twenty times larger in my filters than in theirs. The S. I. D. F. Co. repeats for the hundredth time a statement made in some report that "animal charcoal" favours the growth of low forms of life. This statement has been denied about as many times. I have reason to believe that this opinion has been formed upon the work of filters which contained nothing but coarse animal charcoal, which were always under water and which were not cleansed often enough. It is to the latter cause alone that the failure alluded to (if failure there has been) must be attributed. The bacteria or low forms of life would gradually accumulate and multiply without let and hindrance by their own power of reproduction and not from any action of the animal charcoal proper. But, if for argument sake we grant that imperfectly burnt bone charcoal, or charcoal which has been exposed to vitiated air, does not prevent, but, on the contrary, assist the development of bacteria, this does not prove in the slightest degree that the filtering medium I use, and for the preparation of which I obtained a patent, has any such fault. In fact, I positively assert that it does the very contrary; and this brings me to the point on which you, Sir, lay so much stress, namely, whether the bacteria or germs arrested in my filters are destroyed? To this I reply unhesitatingly, Yes.

The bacteria and bacilli are essentially water germs, and, like fish, they cannot live out of water.* In my filters there is a constant condensation of oxygen taking place on and in the pores of the filtering medium from being exposed to the air when water is not actually passing through it, and I maintain that the bacteria are *burnt up* or oxidised by the said oxygen.

Now in the spongy iron filters no such action can take place. At the Exhibition of the National Health Society last year the Spongy Iron Filter Company were exhibiting one of their filters broken, and showing what became of their spongy iron if the filter was left without water for any length of time—all of a lump like a thunderbolt! It may, perhaps, not be wondered at that the Judges of that Exhibition, among whom were two distinguished public analysts, did not think the spongy iron filters worth any award. They gave me a Silver Medal, the only award given to filters.—Your obedient servant,

P. A. Maignen.

22 and 23, Great Tower-street, E.C.

April 16, 1884.

P.S.—I was going to forget one very important question put by the S. I. D. F. C., which is: "Supposing even such a screen could be constructed, would it form a practicable domestic filter?" Again I must reply in the affirmative. My "Cottage Filtre Rapide," which is sold at 15s.—a charge of new filtering medium for which costs 1s.—is as good in action as the largest of my filters, which are suitable for waterworks.

* Mr. Maignen's statement must be qualified here. There are many forms of by no means the lowest organisation which can live apart from water entirely for months, and this although these animals are normally water-livers. So, also, many germs can be dried and yet be revived on application of moisture.—Ed. H.]

DR. NEALE'S CHEMICAL LUNG.

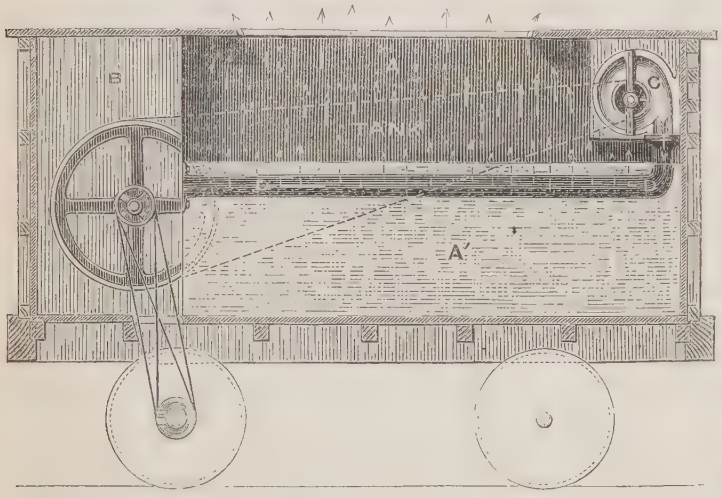
Sir,—As you have noticed the protest I have made regarding the non-admission of my chemical lung into the International Health Exhibition, I think that your readers may be interested in a description of the invention, and be better able to judge whether I have reasonable grounds of complaint.

My original idea was to invent a simple method for purifying the Underground Railway, theatres, and other public buildings; subsequently I adopted similar means for securing perfectly pure air in sick and other rooms. The whole action of the lung depends upon the affinity of carbonic acid, gas, and sulphur gases for caustic alkalies. For the Underground Railway, I propose that a tank carrying two or three tons of caustic solution, open back and front, be attached to each train; within the tank is a drum, covered with cellular sheeting, revolving through the solution below, the drum filling the whole space of the carriage. As the train rushes through the air, all imparities passing through the cellular drum are arrested, the gases converted into carbonates, sulphides, and sulphates, and particles of all kinds, organic or inorganic, are fixed by the wet sheeting and washed down into the lower trough, the organic being destroyed.

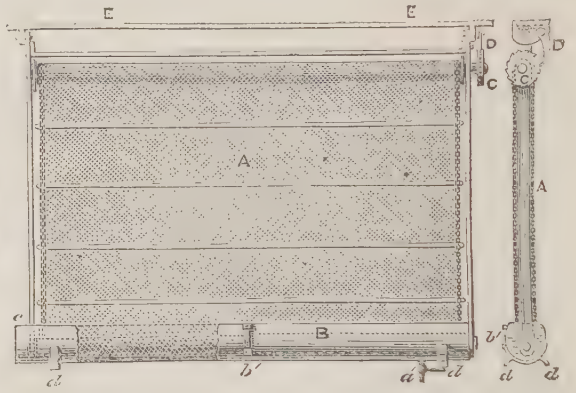
In sick-rooms the same chemical means are adopted, but the apparatus assumes a punkah form. An endless cellular sheet revolves by an ingenious arrangement, as the punkah sways, through a trough containing the caustic solution, and renders the air of a sick-room so pure that, night and day, a deep respiration is involuntarily taken on entering to enjoy the delicious freshness of the air.

If the building be large, such as a theatre, then by an intake-pipe in the roof, leading to a chamber containing the chemical agent, the hot, foul air of the building is exhausted by a fan, and after being purified is conveyed back to the building by pipes leading in various directions, so that the warmth of the air is utilised without any draught being caused, and if too warm, the air may be readily cooled.

Many demonstrations, before leading scientific men, have been made in a chamber from which all avenues of ventilation have been shut off. Fifty to eighty gas-jets have been kept burning for two

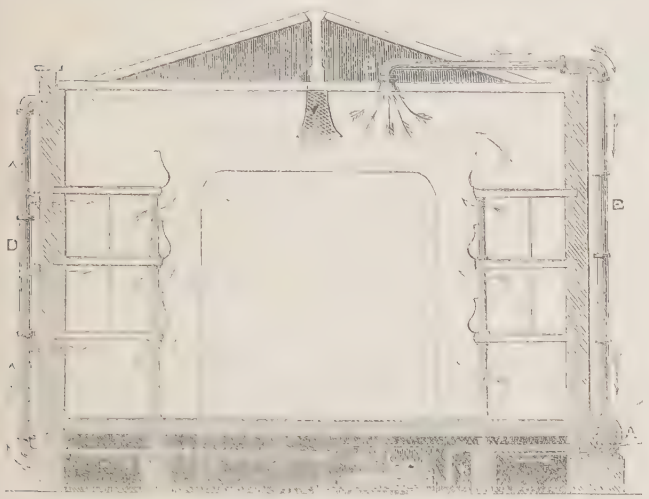


A Railway "Lung."—A, tank; C, fan worked by progress of train; tunnel air is forced through the solution A′ by perforated pipe D D, passing out quite pure.



Chemical "Lung."—A, endless sheet; B, trough containing caustic alkali; E E, bar attaching lung to ceiling of room; C, D, wheel and ratchet, causing sheet to revolve; *c*, pocket for alkali supply; *a*, tap; *b′*, water-gauge.

hours, raising the temperature thirty to forty degrees, besides loading the air with carbonic-acid and other vapours. The room has then been further fouled by burning large quantities of sulphur in hot coals, and by evolving large volumes of carbonic-acid gas from chalk and muriatic acid. In ten minutes after the punkah has been in action, the temperature has fallen ten to fifteen degrees, according to the moisture of the atmosphere, and all impurities have been removed, the air of the chamber becoming every moment more and more respirable.



A "Lung," fitted to theatre. A, rotary fan drawing impure air through B to tank C, containing chemical solution. The purified air passes out through D into theatre, and can be cooled or heated at will.

To occupy further space in your valuable journal is not necessary, as the above description is sufficient for your readers to form an idea of the merits of the scheme.—Yours truly,

Richard Neale, M.D., London.

60, Boundary-road, South Hampstead, N.W., *April* 6, 1884.

VEGETARIAN DIET.

Sir,—May I ask through your columns for information regarding the cure of disease by means of a vegetarian diet? I have frequently seen correspondents answered with a recommendation to try the effects of a vegetarian diet. If those or others who have received benefit will kindly send me an account of such I shall be very thankful. Any other information regarding food or the dietetic habits of the peasantry or natives of various countries will be much esteemed.—Yours truly, T. R. Allinson, L.R.C.P.

34, Claremont-square, April 8, 1884.

[Dr. Allinson should consult Parry on "Food and Digestion" for the latter details.—Ed. H.]

QUERIES AND ANSWERS.

GENERAL.

Beta.—See page 4 of the volume you name.

A. C. X.—No doubt; but the risk is great.

Andrew Carter.—We do not approve of the practice. It is a quack practice, detestable in its nature, and morally bad.

B. A.—Send your address, please.

Ixion.—1. Microscopically measured, a human red blood-corpuscle is the $\frac{1}{3000}$th of an inch or so in diameter. 2. "Microbes" is the name given to disease-germs at large.

Celtic.—About £30, we think.

Annie B.—The Examinations of the Science and Art Department are held in the various centres in May.

Oswald.—We should advise you to visit the "Zander" Institute, 7, Soho-square, W.

Alexander Gordon.—For mildness, the Clyde, certainly.

SANITARY.

Cecil George.—Carbonic acid (CO_2) and carbonic dioxide are one and the same gas.

A. L.—1. Complain to the Medical Officer of Health of your city. 2. Yes; in Edinburgh the system of compulsory notification of infectious diseases is in vogue. The doctor reports to the Health Officer, and receives 2s. 6d. for each case so reported.

Leslie.—Try chloralum wool as a dressing.

George Power.—1. You mean Liernur's system of disposing of sewage. 2. By aspiration.

Aqua Pura.—Many houses have only one cistern, and this need not be a source of ill-health, provided the overflow pipe is properly disconnected from drains, and the W.C. supply-pipes also properly trapped. You cannot compel your landlord to alter things, unless in the bye-laws under which the house-building operations in your district are conducted, a separate water supply for closets is made essential.

MEDICAL.

Dot.—In your case there is evidently tonsil and general throat weakness. A careful examination by an aural surgeon of experience will alone suffice to guide you in the treatment of the ear-trouble. We can only presume here to advise you to look to your general health as a necessary item in the treatment. Take cod-liver oil and iron as prescribed to "Gordon," in No. 55 Health, and have your throat painted with tannin and glycerine. Glad to be of any further service to you.

H. T. W.—As each correspondent's case receives attention from us, and a separate reply, we cannot explain (even as a matter of confidence) the nature of the affections for which remedies are prescribed or advice given here.

Alice Mary.—Anoint the eyelids with pure Vaseline night and morning. Bathe the eyes with cold water before anointing, and take fifteen drops *Fer Bravais* in water thrice daily for a time as a tonic. Let us hear how you are in a few weeks.

Cornubian.—See advice to "Hesitation" above. You certainly require more out-door exercise than you appear to take at present. This would relieve most of your symptoms. Write again if not improved.

James Burton.—Give up tea and coffee, and try cocoa or cocoatina (Schweitzer's). You need not be alarmed or despondent in any way. Make a change in your diet, and take more fruit and vegetables. Exercise, judiciously taken, would also benefit you.

Sempach.—Perfectly natural, and a sign of health rather than otherwise. No need to be nervous in any way.

Sam.—No connection whatever between your nose-trouble (which is due to indigestion) and your previous habits. The latter are always exaggerated into causes of disease. See to your digestion; rest after food; avoid stimulants; and take a little Pepsine for a time with your meals.

J. McLeish.—With a case like yours we heartily sympathise; but as you had surgical treatment in Liverpool, we do not see what more can be done. As you are near Edinburgh, comparatively, we can only offer to give you, if you wish it, a note of introduction to an eminent surgical authority there, who would decide whether or not any further treatment could benefit you. This advice we think we could procure for you gratis, a proceeding which (as we gather from your letter) is needful in your circumstances. It seems certainly strange that the wound has not closed; but your case is eminently one for a surgical examination, as you yourself must know.

Whiteface.—1. Messrs. Dowie and Marshall have had long experience in fitting boots to the feet, and in constructing boots on anatomical principles. The ordinary shoemaker, as a rule, makes the boots first, and the feet have to be contorted to fit their casing. We can thoroughly recommend Messrs. D. and M.'s boots and method. 2. No remedy as far as we know; but you might try the effect of the lotion recommended to "Capillary," in Health No. 53, by way of stimulating the hair-growth. 3. Ordinary meals; but rest after meals is necessary.

Omega.—Simply watch your digestion carefully, and learn to avoid what disagrees with you. You will find all your symptoms depend on your general health. Tea and coffee in moderation will do you no harm. Out-door exercises, also, in moderation are good.

James Wilson.—It is evident you have suffered from some spinal injury—the whole treatment you have had shows this. These ailments are often stubborn in nature, and recovery may be slow. You appear to have recovered wonderfully, and we should advise you to persevere with the "jacket," under medical advice.

Hesitation.—Try first our advice given to "S. O. D." in No. 55 of Health. If not bettered thereby in a few weeks, we shall be glad to advise further. You are not ill, in any sense; therefore avoid morbid fancies.

E. Hunter.—We will make inquiries, and reply in this column at an early date.

D. Allen.—You should certainly see a surgeon. It is most likely the inflammatory affection from which you suffered was imperfectly cured; and if, as you say, a lump remains, it may prove to be a constant source of worry to you, and might be easily put right. Any irritation might be liable to bring back the original affection, or, at least, to cause inconvenience and pain.

W. R—d.—We do not see what can be done for your highly nervous state except recommending you to seek absolute rest for a time, and to go away for a complete change of air and scene. It is clear, from what you say, that drugs are of no avail in your case, and we should recommend you, therefore, to trust to rest, fresh air, and new surroundings for a time.

Evelyn.—There will be no need to continue the lozenges if you feel better. See to your teeth and digestion. Try Bragg's Charcoal Biscuits as well. Your ailment largely depends on the state of the stomach.

St. Bernard.—You should know that what you complain of is perfectly natural in most healthy persons. If you exaggerate your symptoms into disease, you would be very foolish, and those who advised you so would be equally culpable. Attend to your digestion simply and independently of all other symptoms. See advice to "S. O. D." in No. 55 Health.

Gums.—Try a little tincture of myrrh and water as an application to harden the gums. Look well to your teeth. Use camphorated chalk and a soft brush.

J. A. K.—Your symptoms are those of indigestion, aggravated by confined hours and a laborious trade. See to state of bowels; avoid constipation by taking a little Æsculap Water in the morning occasionally, by varying diet, and by eating fruits and vegetables. Rest after your food is essential, and a little Pepsine taken after your meals will benefit you. Outdoor exercise, taken gently, as in walking, might also be advisable. All you complain of may well arise from hard work, indigestion, and want of fresh air.

A. Wardrop.—See advice as regards indigestion, given to previous correspondent, "J. A. K." Avoid suppers late at night, and take Pepsine. Rest after food will also benefit you, and cure distension. Avoid vegetables for a time, and take Æsculap in the morning occasionally.

Weak Chest.—You are evidently very silly in thinking you are ill. From your own statement you seem in very fair health. You may not be over-robust, but you certainly need not fear that you are on the verge of serious disease. Take cod-liver-oil, a dessert-spoonful after your meals. You may be naturally "short-winded." The advertisements you enclose are quack announcements. If you wish to waste money and time, by all means give them a chance. Try cold sponging to your chest each morning, if you have sufficient reaction afterwards.

J. Brown.—You should take your child at once to an eye-surgeon. The eyesight should never be trifled with. Smear pure Vaseline on the lids at night. The fact that the child hardly cares to open the eyes at all indicates the necessity for good and speedy advice, even if, as is likely, there is merely some little weakness of the eyes.

Carl St. John.—You are in a morbid state of mind. What you complain of now is a perfectly natural symptom, and a sign of health. If you begin by thinking you are in ill-health, when you are really well, no advice can be of service to you. Rest assured, you suffer from no disease whatever. Cultivate a cheerful frame of mind. Your chief ground of complaint is really never thought anything of by thousands of healthy persons. Take the step you meditate as soon as you like.

A Poor Watchmaker.—We advise you either to see an eye-surgeon, or to write to Mr. Browning, 63, Strand, London, and get him to advise you regarding spectacles. Your trade is against you if your sight is failing, and you certainly should have your eyes examined and sight tested at once. From your description of your symptoms we think glasses would aid you greatly.

B. Paul.—You give no details of your health, habits, &c., such as would enable us to judge fully of your state. All we can say now is that the mere fact of your losing weight is in itself a reason why you should undergo a full examination by a competent physician. In your city there are many excellent doctors. Consult with the Professor of Medicine in the University. Such a step will relieve your mind, and indicate the proper steps for a cure.

Benedict.—In such a case as that you name, you should remember that all depends on the state of health, &c., of the person concerned. If below par, or mentally worried, the habit you allude to is apt to induce nervous exhaustion, which is never felt when the subject is well and strong. You must, therefore, judge yourself of your own state of health, which we fancy must be a little below the normal. Absolute rest for a time from all exercise is itself a remedy; and you might, if you require a tonic, take a teaspoonful of Fellows' Syrup of the Hypophosphites thrice daily, an hour before food, in a wineglass of water.

Morbid.—The secretion you name is perfectly natural, and is given off by the small glands of the skin. You are evidently not a person of cleanly habits, otherwise you could never have spoken of "going a week without washing." Did you never hear that "cleanliness is next to godliness?" Wash daily, and your troubles will cease.

Pickwick.—1. Use a little good pomade or Rowlands' Macassar Oil. 2. Turkish bath is likely to do good in acne. 3. Use a little plain Vaseline, and wash frequently with Terebene Soap and tepid water. Nothing serious.

Sanitas.—1. See advice to "S. O. D." in Health, No. 55. 2. See that there are no "worms," as these often cause irritation. Use cold-water injections and wash frequently with Terebene Soap and tepid water. 3. Avoid heavy or late suppers, but take a little food (light) an hour and a-half before bedtime. A walk just before bed will also do good. If not bettered, write again.

Charles Brown.—There is no other remedy save a truss. If you go to a good instrument-maker (say Hilliard) you should get a properly-fitting truss without difficulty. Why does not your doctor see that the truss fits properly? We do not recommend any such medicine as that you name. A warm bath at night is the best thing for the child; guard carefully against cold thereafter.

Enquirer.—We should try *Hazeline* in any case. It cannot be injurious in any way, but will relieve pain and irritation. Dilute with half its bulk of water, and apply as a lotion.

Nomen.—See reply to "Too Fat" in Health, No. 55. We shall shortly review Dr. Ebstein's Book on Corpulence (published by Grevell, 33, King-street, Covent-garden, W.C.), which may suit you. Dr. Smith's Foods (Kegan Paul & Co.) might suit you. See to your digestion for redness of nose. Tinned sardines are fattening, through the oil they contain. They are not injurious in any way.

Ajax.—Probably due to digestive disturbance; a common, but not serious symptom. Drink plenty of potass water, and rest. The symptom is often indicative of over-work. Avoid stimulants, and attend to bowels.

Lancashire Lad.—We are of opinion that your symptoms are those of indigestion, possibly aggravated by overwork, travelling, and business worry. Our advice to you is to seek a change and to take a holiday—say, at Lytham or Blackpool. Rest is necessary, and you will also do well to attend to your food, and to avoid constipation. Eat fruits and vegetables, and try cold sponging each morning, if you have sufficient reaction. Take Pepsine after your food, as directed on the bottle; and also, an hour before dinner, take a pill containing two grains sulphate of quinine. Give up all alcohol and smoke less.

F. G. W.—Please restate your case. We do not preserve letters. Detail your symptoms again.

Christ Church.—We think your ailment was simply due to the fruit you had eaten, and was an attack of indigestion. Avoid fruit of the kind you took, or, at least, be more moderate in fruit-eating. The collapse you suffered from, and which the brandy relieved, is a prominent symptom of biliousness due to indigestion.

Sufferer (Bath).—You do not state the cause (if any), of the ear-discharge. Until we know this, and further symptoms, we cannot advise you. Did you suffer from any fever prior to the ear-affection?

A. Field.—Yes; Thomson's Nerve Tonic is likely to be of service in your case. We have seen it do good in such cases. Attend carefully to your digestion, and avoid constipation.

Hair.—You wash the hair too frequently. You will never cure, but only aggravate scurf, by too frequent washing. Avoid also small combs and hard brushes, which increase the trouble. Sponge the head with a strong solution of borax and water; or rub in glycerine and borax (one ounce borax to four ounces glycerine), at bedtime.

Justice.—You entirely mistake the cause of your pains. They probably arise from indigestion. Look to your food and avoid constipation. Eat fruits and vegetables. If the pains continue, take fifteen grains bromide of potass in a wineglass of water on going to bed.

Timid.—Are you not constitutionally nervous? and do you not think your profession, and long hours of continuous mental (and physical) strain, may have much to do with your condition? We can only advise rest as much as possible for you, and a change of air. You are not in ill-health, it is clear, and your troubles are chiefly of mental origin. Look well to your general health, and take ten drops *Fer Bravais* thrice daily in water as a tonic. Glad to be of any further service.

Egeus Homo.—Take more open-air exercise; see to the state of stomach, and avoid constipation. Take a little Æsculap or Friedrichshall Water in the mornings for a time, and avoid all indigestible foods. Do not eat suppers.

Crab.—We do not understand what you mean by "fixing a limit." Make your meaning clear, and we will reply to you.

[*Continued on page* 64.

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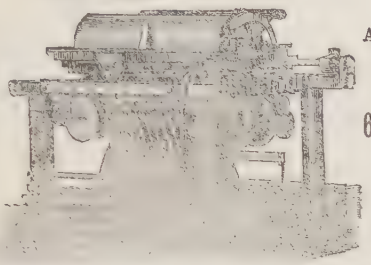

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"HENRY HOLLAND, *Physician to H.M. the Queen;*
"WM. FERGUSSON, *Physician to H.M. the Queen;*
"J. R. MARTIN, *C.B., F.R.C.S., F.R.S.*"

* * * * &c. &c.

DR. C. HANDFIELD JONES, F.R.C.P., F.R.S.
Physician to St. Mary's Hospital.

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McGariel.—1. Possibly. 2. It might so act; certainly can be cured by attention to general health, change of air, and rest. 3. Use the means till cured, of course.

W. Danvers.—See and follow advice to "S. O. D." in No. 55 Health; and, above all, don't be morbid or nervous. If you will pay quacks for their "Restorers," you must suffer the pecuniary loss and disappointment such foolishness entails.

W. H. Stanley.—Were you not replied to as "H. Stanley" in Health No. 55? Reply there given applies to your case. If not bettered, write again. You have certainly run the gauntlet of purgatives. Send stamped addressed envelope for dentist's address.

Alfred.—1. Take ten drops *Fer Bravais* in water thrice daily between meals. 2. Yes; if the sponging can be borne. Use brisk friction thereafter. 3. Hot salt-water baths at bedtime for the feet.

Ignoramus.—Your late hours; and, possibly, the slight irritation of your wound, might well account for your symptoms. No fear of any ill-effects from the wound. Simply apply a little pure Vaseline to the scar. For the rest see advice to "H. Stanley" in No. 55 Health.

Cricketer.—Our remark was perfectly clear, and circumstances should have taught you that you might practise the cold water application—say, daily—until you found it either cure you or disagree with you. As a rule it is a beneficial practice, but may not agree with everyone.

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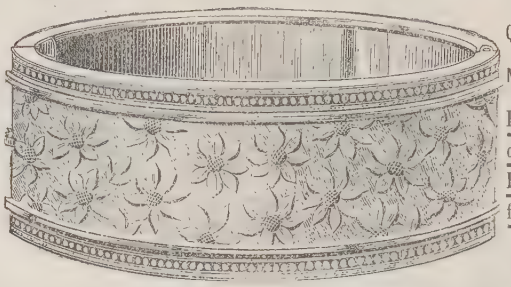

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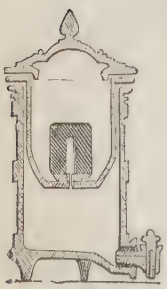

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• HEALTH •

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, MAY 9, 1884.*

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Notes by the Way

"Health is the foundation of all our physical happiness."—*Herder.*

With the present number of Health we issue the first of our Supplements, designed to illustrate, week by week, the history of the "International Health Exhibition," opened yesterday by H.R.H. the Duke of Cambridge. The Supplement to Health is issued *gratis* each week with the journal itself, and every subscriber to Health should therefore see that a Supplement is duly supplied with each number till further notice. By aid of a full and graphic description of the exhibits, we hope to make our readers thoroughly acquainted with all that is worth notice in the Exhibition of the year.

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We beg to call the attention of our readers to the series of articles on "Public Parks and Open Spaces," by Mr. George Howell, the first of which series appears in the present number of Health. Of Mr. Howell's fitness to treat this subject nothing need be said; and as the topic is at present attracting much attention, we regard the appearance of these papers as of opportune character. The public should feel deeply interested in the discussion of their rights and enjoyments in the matter of open spaces. There is no aspect of public health which is of higher importance than that dealing with the advantages of these "lungs" of our towns and cities. Recent proceedings connected with the unwarrantable enclosure of common lands seem likewise to invest Mr. Howell's topic with especial interest at the present time.

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Our readers will remember that we referred in Health No. 55 to the case of a Huddersfield gentleman who sued the Corporation of that town for damages, on the allegation that an attack of lead-poisoning was due to the fault of the Corporation in supplying water in lead service-pipes. Our account of the case was taken from details furnished by a letter in the *British Medical Journal* of April 19, in which Dr. Joll, of Liverpool, gave an account of the proceedings. Mr. Batley, Town Clerk of Huddersfield, writes us to the effect that, firstly, the recent judgment in the case (which decided against the plaintiff) is not under appeal to the House of Lords. Dr. Joll in his letter remarked that it was probable the case would "again be heard before the House of Lords this year;" and hence our remark that the case was under appeal. We accept Mr. Batley's correction; although, we presume, the possibility of such a course on the part of the plaintiff is clearly indicated in Dr. Joll's remark.

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In our comments on the case—one, we need hardly point out, of much interest to individuals as well as to Corporations—we, again relying on Dr. Joll's statement, assumed that the Corporation of Huddersfield insisted on the use of lead-service pipes for the water-supply. Dr. Joll's words, remarking on the nature of the plaintiff's illness and on the grounds of his action, were that "more especially as the Corporation by-laws specified that all such service-pipes shall be constructed of lead," &c. On these clearly-expressed words our statement was founded. Mr. Batley, however, writes as follows:—"The Corporation by-laws do *not* insist on the universal use of lead for service-pipes, without alternatives, as you seem to think. On the contrary, the decision of the Court of Appeal was based on the fact that under the by-laws in question the use of lead was optional, and not compulsory." Mr. Batley further remarks that we appear to regard the decision in favour of the Corporation as "to some extent questionable." Our own words were: "If a Corporation insists on the use of lead service-pipes, the quality of the water and the likelihood of its acting upon the pipes should be duly ascertained." From which it appears very clear that we enunciated a general proposition, in no way concerning Huddersfield specially, and one the reasonableness of which cannot, we presume, be denied. It is satisfactory, at least, to learn that Huddersfield by-laws do not make lead-pipes a necessary feature of the water-supply; and we trust Mr. Batley will correct Dr. Joll's misapprehension on this point.

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We observe that Mr. Scattergood, of Leeds, writing on this topic in the *British Medical Journal* of April 26th, remarks that the Court of Appeal held the Corporation free from blame, because they had delivered a pure or wholesome water from their main. "In my opinion," adds this correspondent—and his words are worthy remembrance—"seeing that service-pipes are almost universally of lead, and are known or expected by water companies to be so, that ought not to be considered a wholesome water, in any just acceptation of the term, which is certain to be poisoned before it can reach the consumer."

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A correspondent, calling our attention to a newspaper advertisement that the grass grown in the graveyards and cemeteries of a Scottish town would be sold, presumably for the feeding of cows, writes to inquire if the fodder in question would produce injurious effects on the animals fed thereon. His question, we think, would be answered by sanitarians at large in the negative, with this addendum, that, as far as we know, no ill-effects have been traced to the use of the milk of cows fed on grass of this description. The mere fact that plant-growth does not necessarily absorb and reproduce deleterious matter, would serve to show that the grass of graveyards is not, of itself, injurious when used as fodder. As a matter of fact, crops do not reproduce the essence of the manure used to fertilise the ground on which they are grown. In the wonderful economy of nature, matter is changed, decomposed, and built up in new forms in the course of plant-growth. The nearest approach to the case quoted by our correspondent is that of cows fed on the grass of sewage-farms. The evidence at hand on this latter question seems to show that no dangerous results arise from the consumption of the milk of cows so fed; and that the milk of such cows proves to

be rich and wholesome, and to show no tendency to putrefactive change, as has sometimes been alleged.

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Although the Cremation Bill has been "disposed of" in Parliament, it was satisfactory to note how strongly opinion on the general advisability of the practice was expressed. There may be difficulties in the way of adopting cremation as a universal practice, but the over-crowded cemeteries of the land speak eloquently, if silently, of the crying need which exists for the disposal of the dead in some fashion less calculated than is the present mode of burial to injuriously affect the living. We shall shortly publish a series of papers on Cremation, by way of showing the methods and benefits of the system.

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We are glad to observe that the *Lancet* sounds a note of warning in reference to disinfectants. Many persons have come to regard disinfectants as the universal panacea for every evil that can possibly arise from drain and sewage obstructions and faults. We should bear in mind the invariable rule that no disinfectant can ever cure a drain-evil. To waste disinfectants in the endeavour to get rid of a bad smell arising from, say, a faulty closet or a leaking drain-pipe, is a proceeding equivalent to that of Mrs. Partington mopping backing the sea-waves with her broom. The true uses of disinfectants are limited, firstly to the direct destruction of disease-material arising from fever and other cases of ailment, and secondly to the purification of the air of sick-rooms of our houses, and even of the streets —always provided such air-contamination does not arise from deficient drainage. Very many persons who freely use disinfectants do so under the idea that these chemicals counteract every sanitary evil; and it is to be feared that, as the *Lancet* puts it, but for the facilities of obtaining disinfectants, many deficient drains, left to show their own defects, would be re-laid and repaired.

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Recently, we commented in these "Notes" on the full supply of Medical men which exists in America. It would appear that Russia stands at the opposite extreme from the United States in this respect. It is said that throughout the Russian Empire—with the exception of the large cities —there is a paucity and lack of medical men. For one thing, the Russian death-rate is a very high one. The average duration of life is said to be only 26 years, and while more than 60 per cent. of infants die before attaining their fifth year, out of 8,000,000 of persons, only 3,770,000 reach their 25th year of life. Of this residue, at least one million are found to be incapacitated by bodily weakness from military service. It seems clear that health-science in Russia requires cultivation.

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A curious case of *charbon* or "splenic fever"—the disease affecting cattle, sheep, &c.—has been reported as having occurred in an English labourer. This man was admitted into a London hospital, having all the symptoms of the disease. The "pustule," or disease-focus, was excised by a surgeon, and the patient is making a good recovery. The source of the infection, it is interesting to note, appears to have been some hides, imported from China, which, in the exercise of his vocation, the man had to handle.

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Original Essays

"Life is not to live, but to be well."—*Martial.*

"GOOD REMEDIES OUT OF FASHION."

By Dr. Andrew Wilson.

I have borrowed the title of this article from that of a highly interesting pamphlet, by Dr. Hare. The pamphlet in question deals with topics of high importance alike to the public and to the medical profession. Dr. Hare delivered the substance of the *brochure* as an address to his medical brethren of the Metropolitan Counties Branch of the British Medical Association; and there can be no doubt that its republication by Messrs. Churchill will prove eminently serviceable to professional men, as well as interesting to that large and increasing section of the public who take an interest in the progress of the healing art.

Medical science, like most other mundane affairs, does not fail to reflect traces of progress and evolution. More decidedly, perhaps, than in any other section of human knowledge, is the gradual elaboration of opinion witnessed in medicine. The modes of treatment and the ideas and notions entertained regarding disease, represented even a quarter of a century ago, have in many cases been largely modified; in some instances, entirely superseded. This result is not by any means to be wondered at, but is, on the contrary, a clear consequence of the many influences at work, which drive medical science forwards and onwards with rapid strides. Medicine is really the sum total of the application of very many branches of scientific inquiry. From botany to the actual study of disease—from zoology, and chemistry, and physics, onwards to the knowledge of drugs and their action—there are varied and diverse sciences which culminate and focus themselves in the art which specially ministers to what Bacon calls "the relief of man's estate." Medical progress is, therefore, not merely sure—it is also in the truest sense rapid; and a glance at the researches and advances of even the last five years will serve fully to substantiate the truth of this remark.

But rapid progress is not without its counterbalancing side. There is a possibility that, lured by the attractions of new and promising fields of inquiry, the mind may be distracted from observing more closely the wisdom that lies at hand. The search after what is new, is apt to blind mankind somewhat to the possible good that remains for discovery even within the circle of what is familiar and known. This, I think, is Dr. Hare's contention in the essay before us. He is not averse to the adoption of new remedies. On the contrary, he everywhere shows his high appreciation of the scientific work and research which are everywhere being pursued. But, at the same time, he thinks several valuable plans and modes of alleviating pain and of treating disease have been allowed to pass "out of fashion." Not, perhaps, that their usefulness has been always despised; but their claims, once honoured, have been superseded by newer and more "fashionable" modes of dealing with disease; and thus the world loses in its progressive march, something of the good it once knew and esteemed. Dr. Hare proposes in his essay to revive and to disinter some of these modes of treatment; and in so doing has really laid public and profession alike under a debt of gratitude. There may be great wisdom in reviewing the work of the past; and assuredly, in matters medical, it would seem as though this aphorism held extremely true.

Our author starts off on his journey of reminiscences

with an auspicious topic—that of the decreasing use of alcohol in the treatment of disease, and the increasing employment of milk to that end. Dr. Hare says that twenty-five years ago it was difficult to find a patient who had been but a few hours inside the hospital walls, and who had not already been put on three or four ounces of brandy or double the amount of wine. Nobody can be unaware of the decreasing use of alcohol in medical practice. Doctors have been educated out of this alcohol craze by sounder science showing them the true place and position of alcohol as a factor in health and disease. But Dr. Hare is cautious as well as progressive. He would not practise his profession, he tells us, if he might not use alcohol when and where he finds it needful. Alcohol is, therefore, a "good remedy," which has wisely been put "out of fashion," because of old the fashion consisted in an abuse of its powers. The reverse is true of milk. There is hardly a disease in which milk is not used for treatment, and this with results of a satisfactory kind. The quantity of milk consumed in 1832 at St. Bartholomew's Hospital, London, cost £684; in 1882 the milk bill was £2,012; at Guy's Hospital the amounts for these years were £236 and £1,488 respectively; and at the London Hospital £426 and £2,427. These figures speak for themselves.

Passing now to that very homely remedy, an "emetic" (or agent producing vomiting), Dr. Hare reminds us that, of old, the administration of an emetic was frequently the prelude to the treatment of many ailments. He is of opinion that this is decidedly a good remedy which has too much gone out of fashion. In the early stage of croup, our author would give an emetic. It cuts short many symptoms, relieves fever, and may, in diphtheria, bring up the membranes that form in the throat, when coughing is in vain. In "suffocative bronchitis," too, the effects of an emetic, Dr. Hare says, are "sometimes magical." The want of breath, the terrible difficulty of breathing, and the other distressing symptoms, are relieved by giving twenty-two grains of ipecacuanha in an ounce of water. Almost certain death, says Dr. Hare, may be averted by this well-nigh obsolete practice, which acts mechanically in relieving, by its action on the stomach, the accumulation in the air tubes of the lungs. In a case of severe indigestion, with sickness after food, combined with vomiting, the above-named emetic was found to relieve and cure all the symptoms. The emetic, in other words, by relieving a loaded stomach, gave that organ a chance of recovering its lost tone.

The medical press has long sounded a warning-note about the use and abuse of "purgatives." Everyone knows cases in which individuals, in complete health, dose themselves daily with mineral waters or patent preparations of effervescing nature, under the delusion that these substances are necessary for healthy digestive action. There is no greater delusion. This is the "abuse" side of the question. But there is a reverse aspect, and Dr. Hare points it out for our edification. Of late the professional tendency, he tells us, "has been to neglect them *far too much.*" He tells us that there is entertained a fear that they may produce "debility"—a term our author is perfectly justified in naming "the *bête noire* of the present medical world." He might, with equal truth, have added that it is likewise the trump-card of every quack, and the one name which, meaningless and exact as it is, strikes terror in the lay mind. "Talk about champagne," says Byron, in one of his letters, "there is nothing which cheers your spirits uplike a dose of Epsom salts"; "and," adds Dr. Hare, "in a sense he was right." Sulphate of magnesia (or Epsom salts) has gone "out of fashion," it is true; but, in the form of mineral waters, it appears *redivivus* under a new guise. "There are too many tonics required nowadays," says Dr. Hare; and he re-echoes his opinions in the characteristic expression, "Oh, that men did but know the virtues which reside in three drachms of Epsom salts!" As a means of clearing away from the digestive tract many morbid secretions, the old-fashioned purge has doubtless few rivals.

Half a century or so ago, to bleed a patient for any and every malady was a common practice. Now-a-days, there are few medical men who have ever seen or performed the simple operation of opening a vein—so thoroughly has bleeding been relegated to the domain of "old-fashioned remedies." Now and then we hear of protests in favour of the usefulness of bleeding; but the remedy is, to all intents and purposes, obsolete. The "cupper" of the hospital of thirty or forty years ago, is unknown to-day, and, as Dr. Hare remarks, the profession of "cupper" is "now no more found in the 'Post-Office Directory' than is that of the Dodo or Ichthyosaurus." In 1832, however, St. George's Hospital used 21,800 leeches; in 1842, 19,600; in 1852, 4,050; and in 1882, 400. Indiscriminate bloodletting, neither Dr. Hare nor anyone else, will be found to defend; but that, in certain cases, this remedy should again come into fashion, seems to be a conclusion in the enunciation of which Dr. Hare will possibly find considerable support. Our author does not leave us in doubt concerning the cases in which he thinks bleeding may do good. In the strong, robust person seized with violent lung-inflammation, and where the heart's work is embarrassed, and the pulse hard and full, bleeding, he thinks, is of high value. In acute pleurisy, seen in similar subjects, the operation should be practised. Where the right side of the heart (which pumps venous or impure blood into the lungs) is greatly engorged, as in a case of bad bronchitis, where breathing is laboured, and where the patient seems almost at his last gasp, Dr. Hare would bleed, instead of giving stimulants under present-day practice. "Relieve," says our author, "that poor, oppressed, distended heart, and all may be well!" In certain classes of distressing headache, cupping may effect a cure; and nature herself, teaches us, how such headaches should be relieved, when, in the copious bleeding from the nose which cures the patient, she takes the law of cure into her own hands.

Dr. Hare would also remind us that "dry-cupping," as a means of counter-irritation, is highly useful in such ailments as lumbago, sciatica, and even pleurisy; while dull, heavy headaches may be relieved by the "dry cups" applied to the nape of the neck. "A man," says our author, "for instance, previously feeling perfectly well, is seized, while pulling on his boot, with a pain which grips him across the loins like the clutch of a tiger's paw; to stand up or move one iota from his chair becomes an instant impossibility; the pain—liniments and friction and hot baths notwithstanding—may thenceforward last, though modified, for days, or more. Hot-ironing the part is an excellent

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remedy; but dry-cupping over the affected muscles achieves a miracle—the patient can forthwith get up, march, and attend to his work."

Such is a brief *résumé* of a highly-interesting little work. The high importance of Dr. Hare's teachings, it is clear, lies not so much in the actual illustrations he gives of their successful practice, as in the endeavour to point the moral, that all the good we may know and teach, is not derived from the present alone, and is certainly not wholly hidden in the realms of the unknown.

PUBLIC PARKS AND OPEN SPACES.

By George Howell, F.S.S.

FIRST PAPER.

The immense advantages of public parks and open spaces in and around large towns, as regards the health of the inhabitants, their social improvement, enjoyment, and moral behaviour, are now generally, if not universally, admitted, though the vast importance of such a provision has only been recognised during the last few years, if, indeed, it can be said that its full measure of value is duly appreciated even yet. As a matter of fact, it was next to impossible that the grave dangers to public health and morals, by neglecting to make such provision for the growing populations of our large towns, should be duly gauged, until the pressing needs of the people were shown in a form so tangible and palpable that longer delay might have resulted in consequences disastrous to the well-being of all classes of the community. With the development of manufactures and trade in certain localities, the population increased, and had to be housed, and the green fields, which hitherto had been breathing-grounds for the surrounding neighbourhoods, were handed over to the tender mercies of speculating builders, to be covered with bricks and mortar, without a green spot upon which to rest the weary eye. During the last fifty years this expansion of industrial centres has gone on with accelerated speed, miles upon miles of new streets being added annually, the "country," with its green lanes, grass, and corn-covered fields, receding more and more into the dim distance, and fading even from the memory, like the baseless fabric of a vision, leaving no trace behind. There is no help for this. The building of dwelling-houses must keep pace with the increase of population, and the more wealthy will cover with villas and mansions the few pleasant sites that remain in or near the towns.

Brother Jonathan, with wonderful foresight and forethought, saw and made provision for this state of things. Sites for a public park, a school-house, and a free library, were and are among the first considerations in planning and laying out an area for a new town or village, in the American States; just as we, on this side of the Atlantic, secure plots for a church, a parsonage, and a public-house. Perhaps if we, in this country, could ever plan a new city on hygienic principles, we might begin with a public park, and then construct our dwellings around it; reserving here and there other sites for similar purposes, to be appropriated when the needs of the population required them. As this experiment does not seem possible, we must be content to secure such eligible open spaces as may still be available, having due regard to the public needs, and to the objects for which they are to be acquired. Some are needed for sports and pastimes, where cricket, croquet, lawn-tennis, and other outdoor games may be played; others for quiet rambles among flowers, shrubs, and trees. Children especially need the green grass, upon which to run and play, and enjoy themselves without molestation or fear of injury. For them, mere flower gardens, with gravelled walks, are not sufficient; some space must be reserved for frolicsome gambols and childish games; and the more the better. The playground of a school is good and useful so far as it goes; but it cannot refresh the eye and the mind like the greensward, and never can be so healthful to the lungs. For provincial towns, Manchester and Salford are peculiarly situated as regards open spaces. These two municipalities are practically one huge town, and densely populated withal. The industries within and without their boundaries are many of them of such a nature that counteracting forces are necessary to minimise the direful effects of the noxious gases and vapours generated in and around the vast manufacturing district of which they are the centre. No tidal river as yet sweeps through their midst to help to purify the murky atmosphere, whatever may come of the grand scheme so vigorously promoted by some of their public-spirited residents and capitalists. But even this scheme, if successful, will not render public parks and open spaces unnecessary, for its specific purpose is commercial, not in any sense with a view to recreation and health. Liverpool is more favoured in this respect, and, in a lesser degree, so is Bristol. That there is a growing feeling in favour of more open spaces in the City of Manchester and the adjoining borough of Salford is evident, from the mass of correspondence published in the columns of their daily and weekly newspapers on this subject during the last few years; and the feeling is just now intensified by the movement in favour of a public park for Cheetham, one of the townships of Manchester. Already large public parks exist in these and other towns, and the tendency is to multiply them. It is a healthy sign, and the fervour with which the movement for extending to other less-favoured localities the advantages enjoyed by those where they are established is advocated, is in every sense commendable.

Naturally, in consequence of its vast area, the density of its population, and the ever-increasing rapidity with which building operations are carried on, threatening to cover with bricks and mortar every available acre of land within the metropolitan boundary, London was the first town in the kingdom to realise, to any appreciable extent, the great danger to health and morals which would inevitably arise if its entire surface were covered with nothing but buildings and paved streets, without so much as a green field, or even a tree, upon which the weary eye of the wayfarer might rest, after miles of travelling along its crowded and dusty thoroughfares. The genuineness of the conviction that human beings required breathing-grounds to keep them healthy and bright is proven, in this instance, by the efforts made to prevent further enclosures of common lands within the metropolitan boundary, and the sacrifices made to acquire suitable sites by purchase and otherwise, in localities already thickly populated, and where building land was at a premium. The metropolis is fairly well provided with parks and open spaces of one kind and another, and its very affluence in this respect makes the Londoner sigh for pastures new. His experience of the benefits conferred by recent acquisitions makes him more and more jealous of every green spot, and spurs him on to greater

Pure Water is such a vital necessity that, without it, illness is certain. None are more prone to the ill effects when impure than the young. To ensure a pure supply send a post-card to the London and General Water Purifying Company, Limited, 157, Strand, London, W.C., who will return particulars post free.—[Advt.]

The "Spécialité" Lime Juice, for family daily use throughout the year, has not the usual musty flavour; will not turn mouldy; may be obtained of Chemists and Grocers.—Feltoe & Sons, Albemarle-street, London, W.—[Advt.]

efforts to secure for himself and for all future generations, for ever, every eligible site in each division of Greater London as a public park, or open space, to which he can have free access, at all reasonable hours, during week-day and Sunday, all the year round. The importance of this matter was not recognised a moment too soon, for so active at one time were speculating builders, and so greedy of gain were those that owned the land, that every green field within a radius of twelve miles seemed doomed to be handed over to jerry builders, and their prompters, the lawyers.

When public attention was once fully aroused to the vast importance of the subject, action quickly followed, and steps were accordingly taken to prevent further enclosures, and to preserve some of the open spaces that remained, as breathing-grounds for the enormous multitude of human beings dwelling within the widely-extended boundaries of the metropolitan district. Some of the results of this action will be seen as we proceed; but more are destined to follow, for the people are only just beginning to show how ardent they feel in support of the movement. Several projects are now on foot for acquiring new sites, or for preserving some that are threatened with destruction, as open spaces. The most gigantic scheme is that proposed by the City Corporation, namely, for the purchase of the Alexandra Palace and Park, at Muswell-hill; the next in importance is for a park at Paddington; while a third, just starting, is for the preservation of a fine piece of hilly land belonging to the Drapers' Company at New-cross, commanding one of the best views of London. At Kilburn, they are agitating for another great park in the north-west; and at Fulham also for another in the south-west. Besides which several associations are in existence, aiming at practically the same object, though in different ways, such as the Commons Preservation Society, the Kyrle Society, and the Public Garden Association. Each in its own way is endeavouring to preserve to the people, for ever, whatever open space is of value, as a healthful resort, for pleasure and recreation, wherever situate, if suitable for that purpose. The result will be that, in another ten or twenty years, London will be as well provided with public parks and open spaces as any city in the world, and they will vie with most in beauty of foliage and flowers.

Few persons are aware of the number and extent of the public parks and other open spaces in and around London; and even Londoners themselves hardly know how well provided the metropolis is with breathing-grounds, within reasonable distance of their own doors. A brief description of them may be instructive, and the enumeration may indicate the reason for the general healthfulness of this greatest city in the world. The metropolis is indebted to legislation in one form or another for most of its parks and open spaces. Among the Acts of Parliament which have been passed during the last forty-five or fifty years, many have had reference to this subject. Some of these Acts are of a general character, and apply to the entire country; others are purely local, and relate to the particular town or place mentioned in the statute. But the latter were the outcome of the general principles laid down in Acts applicable to the whole kingdom. The earlier measures relating to this question dealt with the enclosure of commons, and for 150 years they were founded upon wrong principles. The fault, however, of fifty years of such legislation was due to mistaken notions as to the inadequate supply of home-grown food, and the supposed necessity for an enlarged area of cultivation. The consequence was that extended facilities were given for the enclosure of waste lands in 1801, the first year of the present century.

The history of the inclosure of commons is a very curious one, and full of interest and instruction. Previously to 1801, all such inclosures were effected by Private Acts, no general principles in relation thereto being laid down or recognised. Each Act was promoted, and dealt with, as though it had no connection with other Acts of the same nature. Private need and greed being the chief incentives to inclosure, the only barrier to the wholesale appropriation of such commons or waste lands was the cost of a Private Act. The cost often was great, sometimes almost equivalent to purchase, unless the lands sought to be inclosed were extensive and valuable. It is computed that in 1685, out of the 37,531,722 acres constituting the area of England and Wales, some 18,000,000 acres, or nearly one half, consisted of uninclosed moorland, forest, and glen. The rage for inclosure seems to have set in about the beginning of the seventeenth century; and so active were the lords of manors and others interested, that 3,000,000 acres were soon inclosed. The following figures show how rapidly the appropriation proceeded:—The number of Acts passed in the reign of Queen Anne was two; the number of acres inclosed, 1,438; during the reign of George I. sixteen Acts were passed, the number of acres inclosed being 17,660; in George II.'s reign 226 Acts were passed, 318,778 acres being inclosed; during a portion of the reign of George III., 1,532 Inclosure Acts were passed, the total number of acres thus appropriated being 2,804,179. This makes a total of 3,142,073 acres inclosed by Private Acts up to 1791; and the exhaustive process was being repeated year by year, subsequent to that date. The whole of this land was converted from a species of public property into private property, private ownership being substituted for national ownership, without any equivalent in value being given to the nation. The wholesale alienation of public lands evoked no protest; and the only complaint heard was with regard to the cost of the Private Acts by which the alienation was effected. In a Parliament of landowners this so-called "defect" was (unfortunately) soon remedied.

Oliver Wendell Holmes says that the great secret of success in every form of quackery is hope kept alive in the patient; while the too fatal gift of science is a prognosis of despair.

The poor pilferer in a dwelling-house at midnight may be in a state of starvation at the time he lays a trembling finger on something to eat in the larder, or on a silver waiter on the sideboard, but, notwithstanding the pressure and desperation of hunger, if discovered in his trespass and theft, he is sent to prison and his family disgraced thereby; while the architect, the plumber, and, alike, the ignorant doctor, may enter in broad daylight—aye, even by *call*—and steal and destroy the life and health of the occupants.

Medical and Sanitary Exhibition, 1881.—Award of Merit.—Diabetes. Van Abbott's Gluten Bread, and all other suitable Foods for Diabetic Patients. Dietary Tables and Price Lists post-free on application. Van Abbott, 5, Princes-street, Cavendish-square, W.—Delicate Children and Adults Suffering from Nervous Depression. Van Abbott's Hypophosphite of Lime Biscuits, for Delicate Children, especially those suffering from Deficiency of Bone, Weak Joints, or Debility, and Adults suffering from Nervous Depression. Each Biscuit contains five grains of the Hypophosphite of Lime. "Quite free from disagreeable taste, and taken willingly by Children, and certainly provide an excellent means of administering this valuable compound. Our analysis proves the accuracy of the printed descriptions on the labels of the boxes. The Biscuits were suggested by Mr. W. Adams, of the Orthopædic and Great Northern Hospitals." — *Lancet*, Nov. 4, 1876.—Van Abbott, 5, Princes-street, Cavendish-square.—[Advt.]

Public Health

"Health is the first Wealth."—*Emerson.*

THE MORALS OF THE DRAINS.

EXTRACTS FROM A POPULAR LECTURE.

By J. Crichton Browne, M.D., LL.D., &c.

(*Concluded.*)

But, be our drains ever so well constructed, they must be tested from time to time. All persons in positions of trust must have their accounts audited at intervals; and as drains are in a position of trust it is desirable to have a drain-audit now and then. Mark the gymnast who is about to display any great feat of strength or agility! See how he personally superintends the arrangements and tests the bearings of the trapeze, or slack-wire, or other apparatus to which he is about to entrust his life. Well, you have got to entrust your life, not for a few seconds only, but for months or years, to your house, and perhaps also the lives of those who are dear to you; and you cannot be too careful, therefore, in seeing that it is in sound trim, and that its drains are void of offence. And thus the drains must be tested periodically.

For the method now generally employed in testing drains I am, I believe, myself in some measure responsible. When Medical Director of the West Riding Asylum, in the year 1870, a number of the attendants who lived in a suburb of Wakefield complained to me that their houses were rendered almost uninhabitable by a detestable smell caused by the accidental emptying of a barrel of coarse commercial petroleum into the drains at some ink-works in their neighbourhood. It occurred to me immediately that this detestable smell could only enter the houses where there was inefficient trapping or defects in drains, and that the presence of the smell in any house was a sure indication of the existence of free communication between the house and the drains. And then it occured to me that I might make use of this petroleum, with its strong, penetrating, and distinctive odour, to aid me in an investigation of the drains of the hospital under my charge which I was then carrying on. Allowed to circulate in the drains the petroleum would send up its vapours through any permeable holes and crevices, and thus lead to their detection. I tried the experiment, and was rewarded beyond my expectations, for when tried on an antiquated system of drains under an old building, the petroleum sent up its strong-smelling messengers through bad points in soil pipes, through untrapped sinks, through cracked drain-tubes, through the boards of floors, leading to the discovery of innumerable rat-holes and unsurmised defects. The clerk of the works and I went sniffing about like pointers, and following up the scents. We were able to put our fingers on place after place, and to trace out drains where no drains had been known to be, and the information which we then obtained cleared up many perplexities as to outbreaks of disease in the hospital and the distributors of the disease during these outbreaks. Well, since that time the plan of testing drains by fluids giving off strong and characteristic smells has been generally adopted, and some improvements have been made in it. The vapour of petroleum is inflammable when mixed with air, and so is that of ether, which I also employed. So now the agent most commonly used is oil of peppermint, which, when mixed with hot water, emits a very pungent and unmistakable odour, and which has this advantage, that it is a powerful antiseptic and very inimical to bacterial life, so that in using it you are not only putting the drains to ordeal by smell, but are temporarily and partially counteracting the effects of any delinquencies of which they may be guilty.

By pouring, as I now do, a few drops of oil of peppermint on the surface of this pail of boiling water, I shall soon make you all alive to the rapidly-diffusible and unique description of the fumes given off. You will, perhaps, have recalled to you byegone sederunts in drowsy churches, where peppermint lozenges used to be resorted to, either as anti-soporifics or as being, in some inscrutable way, like southern-wood, related to the odour of sanctity! The customary way of employing the oil of peppermint is to pour half an ounce of it, with four or five gallons of water, as near the boiling-point as possible, from the roof of the house down a rain-water pipe, or drain-ventilating pipe, or soil-pipe, all the windows and doors being shut, so as to prevent the entrance of fumes from without, and then to plug the top of the pipe down which it has been poured. Within a few minutes, if there be the smallest inlet from the drain into that house, the most infinitesimal defect in a junction, the slightest inadequacy of a trap, the smell of peppermint will become perceptible to the persons in the house, who, by following it up, will be guided to the weaknesses and shortcomings in their drains. But if, during some hours after such a proceeding, no smell of peppermint can be detected even by a sensitive nose, then that house may be registered as A 1, patent safety, and proof against drain-gases.

There are cynical spirits abroad who sneer at sanitary science, obstructionists who block its progress, and old fogies who pronounce it a new-fangled absurdity. We are warned that we are in danger of a sanitary tyranny more galling and oppressive than any of the political or ecclesiastical despotisms of the past, and startling visions are conjured up before us of what we shall become if we yield ourselves converts to the new Evangel whose motto is *sanitas sanitatum, omnia sanitas.* In the days of the hygienic millennium we are told men will be seen moving about with respirators on, and women in divided skirts, loaded with all kinds of sanitary contrivances, sheathed in hideous and unwieledy mechanism, making them divers fully equipped to pursue their submarine investigations. The British race, it is predicted, will be converted into a congregation of miserable hypochondriacs, for ever wringing their hands and exclaiming, "What shall we eat, and what shall we drink, and wherewithal shall we be clothed?"

But such prophecies and apocalyptic terrors need not alarm us. To be healthy is to be free, and the sick man alone is the slave, bound to a cruel and relentless master, who curtails his liberty if he does not sacrifice his life. He who is sound in mind and body enjoys a large and liberal autonomy, but the victim of degeneration is a mere puppet, twitched and contorted by threads that are lost sight of behind the scenes. In obedience to the inexorable laws of physiological economy we find emancipation, and that true, full, joyous life that consists in the harmonious activity of all the functions of our bodies and faculties of our minds; but in defiance of these laws we encounter only limitation, danger, and death. It is because we have erred and gone astray, and have followed

Scott's Midlothian Oat-Flour.—Messrs. Scott, of 82, York-street, Glasgow, have prepared a singularly pure and nutritious "Oat-flour," which bids fair to take high rank among the food products which are specially adapted for infants and invalids, and for the use of dyspeptics in particular, whose digestion is weak, and whose stomachs refuse to assimilate foods of ordinary kind.—Ed. Health.—[Advt.]

every one his own ways, and, in our self-indulgence, and pride, and ambitious strivings, have shut our eyes to those precepts that are written in our organisation by the same finger that graved the messages of Sinai, that we feel it a hard thing to go back from our idolatries to the simple rule of plain living and high thinking, and a faithful observance of the ordinances imposed on us for our highest welfare. Cleanliness and health are easier and cheaper in the long run than dirt and disease, and no elaborate precautions nor incessant trepidations are necessary in order to regulate our persons, our houses, our towns, in accordance with sanitary principles. When these principles are once grasped, their application under varying circumstances is simple enough. When they are taught to all children, as they ought to be as systematically as the multiplication table, it will become, as it were, second nature to follow them out, and the path of health will become identical with the path of duty.

St. George did not slay the dragon. The monster, quelled by his doughty blows, shammed death and was buried, and ever since has been burrowing underground, in subtlety and rage belching forth its venomous and fiery breath at a million drain-pores, fevering the people and harrying the land as it did of old time. We want a new St. George—a champion clad in sanitary armour—to follow it into its hidden lairs, to track it through its manifold evils and exterminate it and its vile brood, thus vindicating once for all the morals of the drains, and making this in very truth "A Merrie England."

Cold rain water and soap will remove machine grease from washing fabrics.

A judicial *post-mortem* in Vienna on a woman of forty-five years, who had committed suicide, revealed the absence of a spleen. The other organs were normal.

Sugar was the outcome of Moorish civilisation. The Crusader brought back with him the sweet powder his children loved. It was long posterior to the Grecian and Roman civilisations, to say nothing of those of Egypt and Assyria, that sugar, as such, was made in any quantity. The sugar-cane was known to the Chinese at a very early period, and was introduced into the Island of Cyprus, from the interior of Asia; but its introduction into the West Indies, not long after their discovery, was the practical commencement of the production of sugar as an article of commerce.

Paper Towels.—In the surgical dispensary of the Philadelphia Polyclinic, Dr. Roberts has, we read in the *Medical and Surgical Reporter* of that city, been using with much satisfaction Japanese paper handkerchiefs for drying wounds. Sponges are so seldom and with such difficulty perfectly cleansed after being once used, that they are never employed in the hospital. Ordinary cotton or linen towels are much preferable to sponges, which, if dirty, are liable to introduce septic material into wounds. The paper towels, however, answer the same purpose as cotton ones, and are so cheap that they can be thrown away after being used. The cost of washing a large number of ordinary towels is thus avoided. The paper towels are scarcely suitable for drying hands, after washing, unless several towels be used at once, because a large amount of moisture on the hands soon saturates a single towel. For removing blood from wounds, a paper towel is crumpled up into a sort of ball, and then used as a sponge. Such balls absorb blood rapidly. The crude ornamental pictures, in colour, on the towels are of no advantage, nor are they, as far as known, any objection.

The Family Circle

"The child is father of the man."—*Wordsworth.*
"In bringing up a child, think of its old age."—*Joubert.*

A NOTE ON BREAD MANUFACTURE.

By A. Wynter Blyth, M.R.C.S.E., &c.

(Medical Officer of Health for Marylebone, &c.)

A baker writes to Health wishing to expose a practice stated to prevail in certain localities of evolving carbonic acid gas by the action of muriatic acid on carbonate of soda. As our readers know, the little cellular cavities in bread are produced by bubbles of gas in the fermenting dough. The gas, which mainly consists of carbonic acid gas, is imprisoned by the tenacious gluten of the flour, and, therefore, blows it out into bubbles, the form of which remains when the gas has diffused away. The whole object of the fermentation is to produce a sufficient amount of this gas, and to give the bread the proper spongy consistence.

It was not until the chemistry of carbonic acid gas was well understood, that the idea struck people that fermenting bread after all was unnecessary, and that the same gas could be evolved by a purely chemical reaction. Liebig recommended for this purpose a suitable quantity of acid phosphate of lime, chloride of sodium, and bicarbonate of soda. These substances are mixed with the flour and water; a gentle, slow evolution of carbonic acid gas is the result of the reaction, and a very nice light bread may in this way be made. A still more successful process was that patented and invented by Dr. Dauglish, which essentially consists in mixing the flour with water saturated with carbonic acid gas. No yeast is used, and as the mixing can be performed by machinery, the manufacture is extremely cleanly. To aërate bread by means of muriatic acid and bicarbonate of soda is harmless so long as the materials are pure, but some of the commercial acid contains arsenic, and in this latter fact exists, of course, a real danger. The products of the reaction between the pure substances are simply common salt (chloride of sodium) and the carbonic acid gas. The effervescence is stormy and soon over, so that the process is certainly inferior to those given above.

Re-vaccination has been made obligatory in all the colleges and lyceums in France.

The following singular advertisement appears in the *Deutsch-Kroner Zeitung* of Dec. 11:—"Magpies shot between Dec. 24 and Jan. 6 are used for a remedy against epilepsy. The undersigned, with whom this medicine is prepared, will be greatly obliged to every one who will send him at that time as many magpies as possible, provided that they have been shot, and not killed by poison or caught in traps.—Castle Tütz, Dec. 5, 1883. Signed: Theodor, Count Stolberg."

Public health ever goes hand in hand with true liberty and is the companion of orderly habits and pure morals. During the fourteenth century, when vice and mis-rule in Europe had their greatest sway, and the beautiful fruits of civilisation were trampled under foot by barbarian warriors; when acquisitions that had cost mankind ages of toil and millions of money were lost in the general wreck; when the night of ignorance was darkest, the human degradation sunk to the lowest depths—then hygiene was neglected, and plagues numerous and almost universal rested upon the people.

Recreation and Health

"Health is the vital principle of bliss,
And Exercise of health."—*Thomson.*

ROWING AT THE UNIVERSITIES.

By H. R. Dumville, B.A.

The recent University Boat Race has drawn our attention to the subject of rowing generally at Oxford and Cambridge, and we have been considering what are likely to be the effects of the exercise as practised there—whether beneficial or injurious. Thanks to Dr. Morgan, who, after careful inquiry, drew up some, now often quoted, statistics in regard to ten of the University contests, we know that the rowers taking part in them lived longer than the average of their fellow beings, and enjoyed in after years general good health; but they were picked men, with fine constitutions, to begin with, the weaker ones having been discarded. What is the effect upon the main body of students at Oxford and Cambridge? On this point, it is impossible to obtain statistics, and we can only judge from natural inference—a practical deduction drawn from a consideration of the system carried out as to whether its effects are likely to prove beneficial or otherwise. Under these circumstances, an account of what that system is may not be uninteresting to our readers. If they fancy (as we have little doubt many of them do) that the students at Oxford and Cambridge just take out a boat when they feel inclined for it, treating the matter in a light and easy fashion, they are very much mistaken. Rowing at the Universities is made a much more serious business of; indeed, it almost amounts to a labour.

We will take a fictitious case. Tom Leonard, a fairly-tall, averagely-muscular young fellow, whose years number some nineteen, goes up to Cambridge at the commencement of the October term. He has already entered his name on the boards of a college, not one of the largest ones we will suppose, nor yet one of the smallest, but a medium-sized college, and all he now has to do is to take up his abode therein. On going to hall (dinner) in the evening, he finds seated at the same table with himself some thirty or forty other Freshmen. Naturally, conversation is rife among them as to the life they are about to lead, and amongst other items that crop up the different forms of exercise come in for a fair share of attention. One man looks forward to joining the college boat club, another to football, a third to athletics pure and simple, and so on. But, as a rule, rowing engrosses most attention; it is the principal form of exercise at the universities, and what renders it especially attractive is, that many of the men have not the opportunity of indulging in it elsewhere. And upon this point let us make a remark. It is almost imperative that a man going up to Cambridge and joining a college should at the same time join the college boat club; it is a *sine quâ non.* The cricket club he *may*, if by chance he does not care about that form of recreation, avoid, but the boat club he is morally compelled to join. This undoubtedly is hard upon the men with comparatively little money, who, if they consulted their own inclinations, would much prefer to join the Union, or some other intellectual society; but so it is. The man who does not contribute his fair share to the support of his college boat club is looked upon as wanting in *esprit de corps*, is regarded with suspicion, often shunned, and always neglected. However, we will suppose that Tom Leonard has no objection to joining—indeed, that he desires to cultivate the art of rowing above all other amusements. The next morning he goes to the secretary at his rooms and there pays him his subscription. He is then asked if he intends to row—in other words, to become an active member of the club in opposition to that other smaller or passive portion, who are rarely seen on the river at all. Naturally he replies (is it not the sole height of his ambition?) "Yes." To him the secretary (probably) returns, "All right," and makes a note of the fact. The next day, on consulting the screens by the hall-doors, where all the college notices are posted, he finds that he is down for stroke in a tub-pair, with the third captain as coxswain and coach—time, 2.30; and if he examine the other lists he will see that at three o'clock the same gentleman is to take out two more Freshmen, and that all the other officers of the club, with the exception, perhaps, of the first captain, who is too important a personage to have anything to do with such small fry as Freshmen, are likewise engaged in aquatic tuition. Well, he goes down to the boat-house at the appointed hour, and is duly coached and bullied. This continues for some few days, the time depending very much, of course, on the aptitude he displays in his new occupation. Mind you, he is obliged to go down to the boat-house; he can certainly excuse himself before nine o'clock in the morning, but this will only be tolerated once or twice; no matter how bitterly cold the weather may be, snow perhaps lying on the ground, and the wind whistling round his flannel-clad frame as if it desired to penetrate into his very marrow, down he must go. Only when the river is frozen is he exempted from his work.

(*To be continued.*)

Scrambled Eggs.—Put a piece of butter the size of a marble into a small stewpan, add a tablespoonful of milk and one of broth or gravy, pepper and salt; break in two eggs and stir quickly until they begin to thicken, then put the stewpan on the table, and continue stirring until the eggs finish cooking in their own heat. Scrambled eggs should look lumpy and be very thick. When done, pour the eggs on to buttered toast.

Beef Juice *v.* Beef Tea.—Prof. Roberts Bartholow, of the Jefferson Medical College, says: "Nothing has been more conclusively shown than that beef tea is not a food. It is nothing more than a stimulant. The chemical composition of beef tea closely resembles that of urine, and it is more an excrementitious substance than a food. In preparing beef juice, the lean part of the beef should be selected. This should be cut into thick pieces about the size of a lemon-squeezer. The pieces should be next placed upon a hot coal fire for a moment, to scorch the exterior; the meat is then transferred to the lemon-squeezer, which has been warmed by dipping in hot water, and the juice pressed out and allowed to flow into the glass, which has also been heated. The juice is seasoned with a little salt and Cayenne pepper, if the patient desires it, and taken immediately. In this way the nutritious elements of the meat are obtained, and the slight scorching developes constituents which give the peculiar flavour to cooked meat." This is for a diet, the principle of which is the administration of those elements which are disposed of in the stomach, and do not require the aid of the intestines in their digestion.

Scott's Midlothian Oat-Flour.—There is no preparation which can be assimilated with greater facility than such a flour as this. Those who suffer from indigestion might substitute for their ordinary breakfast materials this flour, prepared according to the recipe given by Messrs. Scott and printed on the tins.—Ed. Health.—[Advt.]

The "Boncontour" Stay-Belt and other Orthopædic Apparatus, made by K. R. Schramm, Orthopædic Mechanician, 64, Belmont-street, Chalk Farm-road, London, N.W.—[Advt.]

Jottings from the Journals

"Th' ingredients of health and long life are
Great temperance, open air,
Easy labour, little care."—*Sir Philip Sidney.*

Clothing and Disease in Savage Life.—The introduction of European clothing, also, is attended by grave dangers to health, especially those arising from the intermittent way in which the natives use it, not only at first, but even when civilisation has made considerable progress among them. A ludicrous instance of this fell under the notice of a near relation of my own who settled in New Zealand nearly thirty years ago. Soon after landing he went up the country in search of a suitable district for a sheep-run, taking with him a Maori, as guide and porter. This man, very lightly clad, carried with him a large parcel, of which he took the utmost care, but for some days was never seen to open it. At last Sunday came round, and then he appeared dressed in the contents of his parcel—namely, a full dress suit of black cloth, with white shirt and necktie. On the Monday he resumed his scanty rags. It is admitted on all sides that civilisation at first brings to bear upon the savage some of the most powerful predisposing causes of consumption; causes which many of us would have said a few years ago are sufficient to produce it in certain constitutions.—*Dr. Andrew, in the Lancet.*

Wanted—a Beverage.—Even staunch advocates of temperance are not slow to admit the serious drawbacks from which the cause suffers by reason of their inability to offer any kind of substitute for beer possessing the qualities, less intoxication, for which that beverage is so universally popular. Attempts innumerable have been made to overcome this difficulty; but hitherto all the liquors invented for the replacement of alcoholics have failed to commend themselves to the palate accustomed to the variety of taste and flavour offered in the long list of wines, &c., in general use. With the knowledge of these facts before us, therefore, we could not help but regard with a feeling of anxious interest the goodly array of seductive-looking bottles ranged at the luncheon of the Society for the Study and Cure of Inebriety held lately. As far as externals could guide belief, these at least promised to be no unworthy representatives of the clarets, sauternes, sherries, and hocks customarily found at such entertainments; and expectation in this direction was increased by the announcement that these unintoxicating wines had been "imported from their native vineyards" "by the maker," who, moreover, had cruelly subscribed each high-sounding name on the *menu* by an appetising description of the qualities of each particular beverage. But, alas! for the realisation; and equally for the appreciation meted out to the wines, as shown by the very modest impression made upon the supply. Not a "dead man" could be seen, and our own representative, on returning from the lunch, expressed his opinion of the new "non-intoxicants" in a way that created no kind of desire to become acquainted with them on the part of those who have not as yet accomplished this. In every other respect the meeting and the lunch were exceptionally successful; but the problem to discover a palatable substitute for alcoholic beverages remains still, as ever, unsolved. It must be more to the taste than flavoured syrup and water; the so-called "wines" provided on the occasion in question can claim no higher distinction.—*Medical Press.*

Our Bookshelf

"Reading maketh a full man."—*Bacon.*

THE CURE OF FATNESS.

Corpulence, and its Treatment on Physiological Principles. By Dr. W. Ebstein. Translated from the Sixth German Edition by Professor A. H. Keane, B.A., University College, London. (H. Grevel, London.) 1884.

There is little doubt that the existence of corpulence constitutes a source of serious worry, if not of actual disease, in the case of many persons. People of ordinary size and of ordinary constitution hardly realise what corpulence means and implies to those who are unfortunate enough to be affected with this ailment. Life has been described by a sufferer as shorn of half its pleasures and opportunities of enjoyment. The corpulent subject is limited in his share of the opportunities for healthy exertion, equally in business and amusement. Even his food and digestion become matters of intense anxiety to him; and life is hardly worth living, when, to be lived with any degree of comfort, the subject has to think of every morsel he eats, and of its probable effects in increasing or diminishing the tendency to fatness he exhibits. The distressing nature of corpulence has, as usual, made this complaint the topic and theme of much quack literature. The advertising columns of our newspapers contain evidence that the stout units of the population are daily appealed to by a multitude of "professors" who, for considerations which—however disinterested their apparent nature may be—sooner or later resolve themselves into questions of pounds, shillings, and pence, guarantee to remove or arrest the source of the complaint.

Mr. Banting was amongst the first to show that corpulence might be lessened by attention to diet. It was Mr. Harvey, Mr. Banting's physician, who really suggested what has usually been named "Bantingism"; the mode adopted being allied to that of Dr. Chambers, who in 1850 declared that all fatty articles—fat, oil, butter, cream, milk, &c.—should be omitted from the dietary of the corpulent, and that starches should likewise be curtailed as possible fat-formers. The amount of liquids consumed by the corpulent was also ordered to be much reduced. There is no question that Mr. Banting did succeed in reducing his corpulence, but Dr. Ebstein, whose work lies before us, insists that this effect was produced by a method inconsistent with physiological knowledge. He says: "The Banting cure is, in fact, one of privation, leading to inanition," or lack of due nourishment. Excessive exercise, again, was part of the Banting treatment. That gentleman rowed a heavy boat for a couple of hours daily, and gained muscularity, but, in addition, acquired an enormous appetite. This result was simply that of "robbing Peter to pay Paul." Hence, by reason of its non-success in many cases, "Bantingism" has by no means grown in favour of late years. It is, therefore, with satisfaction that we turn to Dr. Ebstein's work, to find that his system is founded on physiological principles, and as such, may be commended to the notice of those who suffer from overweight.

Fatty foods will only produce fat within the system when the necessary combination with other foods, and when the conditions essential for the storage of fat within the body have been duly represented in the body's ways and in the body's work. We know, for example, that excess of fat may be produced, not merely by a diet in which the fats are too largely represented, but by farinaceous foods

(starch, &c.), as well as by nitrogenous (or flesh-forming) foods themselves. We know also, from many sources of information, that starches and sugars are themselves sources of fat. Thus the negroes fatten during the sugar-cane harvest, when much sugar is consumed; and even flesh-eating animals fatten when starches are added to their normal food. Then, too, the nitrogenous foods (represented by albumen, casein, gelatin, gluten, &c.) form fat. We see fat formed in Roquefort cheese at the expense of the casein contained in the cheese-material. The larvæ or young of flies fed on clotted blood, which contains only minute traces of fat, are found in a few days to have developed ten times as much fat as before. It is, therefore, an extreme mistake to suppose that lean meat and other substances cannot produce fat. That which really produces fat in the great majority of cases is an ordinary dietary absorbed and assimilated under special and fat-favouring conditions. These conditions are perfectly familiar to all. An easy mind, little work, too limited exercise, certain periods or crises of life, and over and above all else, a hereditary and inherited predisposition to fatness as "a bodily failing," are the circumstances which tend to fat-formation. Fatness, like most other bodily traits, "runs in the blood," and no treatment, in certain cases of this kind, can do good other than by retaining within certain limits the tendency to corpulence which exists as part of the patient's constitution.

To show the position taken up by Dr. Ebstein, we may quote his words, where (p. 28) he declares his belief regarding fat formation as an abnormal process:—"In my opinion it has yet to be proved that any portion is deposited of the fats, which are taken with our food into the body, so far as it is in a healthy and normal condition. The experiments supposed to have proved this, so far as I can make out, exclusively affected starving and emaciated animals which had been fed, if not altogether, at least mainly, on fat. Voit says that the formation of fat is mostly insignificant in the carnivora, which, with the exception of fat, consume no food free from nitrogen. That this dictum which, for us, is absolutely fundamental, perfectly accords with the facts, is unmistakably shown by the daily experience of the dog, our most faithful domestic animal. The collie, with sufficient bodily exercise, does not grow fat on a perfectly adequate diet, consisting of flesh and fat, with a sparing supply of carbo-hydrates (starches and sugars). The lap-dog, on the contrary, which, besides flesh, is also fed on delicacies and sweets, that is, on carbo-hydrates, is observed to become rapidly plump and fat; although a not to be underrated part is here certainly played by the quiet and comfortable life led by this variety."

Dr. Ebstein, then, rejects all "starvation cures" for fatness as worse than useless; because, while these cures are being carried out, the patient sacrifices flesh-forming matter as well as fat. His method, like the gout-cure, requires time and patience. He warns us that a few weeks, or a couple of months, are not sufficient for the establishment of a cure; and he further scores, in our opinion, a great point, when he insists on our recognising the fact that the diet of the corpulent must be so arranged as to become the natural food of the person for the rest of his life. That this is a thoroughly consistent theory of cure cannot be doubted. Let us see, then, how Dr. Ebstein would have it carried out.

In the first place, our author is no believer in the idea that all fats must be cut out from the diet-tables of the corpulent. He reminds us of the fact, already noted, that flesh-eating animals do not elaborate fat, although they take no food of a non-nitrogenous kind, except fat. To check fat-formation where a too-generous diet has been taken, less food must, of course, be consumed; but the addition of fat to the food of the corpulent, according to Dr. Ebstein, checks the decomposition of the flesh-forming (or nitrogenous) foods, and thus limits waste, and the consequent craving for food which stands in the way of a cure. So, also, the addition of fat to the food appeases the thirst, as well as the demand for solid food itself; and where thirst is rendered less intense in the fatty subject, there is a clear gain in the way of a cure, seeing that the consumption of liquids is thus reduced. Thus Dr. Ebstein's treatment consists, firstly, in the free recognition of fat as a necessity for the cure of corpulence. Allow a certain amount of fat, he says, and you diminish through this food the quantity of other foods needed; you limit the quantity of liquid required, and you actually avoid fat-formation in consequence.

But the foods which Dr. Ebstein unconditionally sets his face against, in the case of the fatty subject, are all forms of starches and sugars. "Sugar, sweets of all kinds, potatoes in every form, I forbid unconditionally. The quantity of bread is limited at most to from three to three-and-a-half ounces a day; and of vegetables I allow asparagus, spinach, the various kinds of cabbage, and especially the leguminous (peas, beans, lentils, &c.), whose value as conveyors of albumen, as Voit rightly remarks, is known to few. Of meats, I exclude none, and the fat in the flesh I do not wish to be avoided, but, on the contrary, sought after. I permit bacon fat, fat roast pork and mutton, kidney-fat, and, when no other fat is at hand, I recommend marrow to be added to the soups. I allow the sauces as well as the vegetables to be made juicy, as did Hippocrates, only for his sesam-oil I substitute butter." The allowance of fat for the corpulent, Dr. Ebstein sets down at two to three-and-a-half ounces per day; but this amount is not fixed nor absolute. A less quantity of meat is required in Dr. Ebstein's system; about one-half or three-fifths of the quantity allowed in the Banting system, which varies from thirteen to sixteen ounces a day.

Again, Dr. Ebstein tells us that, while he expects the corpulent person to lose bulk, he is on his guard against too rapid reduction of body. He allows three meals—"breakfast, with tea or coffee, without milk or sugar; dinner, and supper." No evening meals or "afternoon teas" are allowed; and of alcoholics, at option, the patient may take two or three glasses of light wine, white or red, at dinner. Beer is not allowed. The following was the diet-scale of a patient who was successfully treated on Dr. Ebstein's system; this person having previously been advised to abstain from all fats, but without any success in curing his corpulence. On the annexed diet "he lost about six inches of his girth in nine months or so," with great improvement in his mental faculties and general health. The breakfast consisted of one large cup of black tea (half a pint), no milk or sugar, two ounces white or brown bread, toasted, *with plenty of butter*. Hour, in winter, 7.30; in summer, 6 or 6 30. For dinner (between 2 and 2.30), soup, often with marrow; four to six and a half ounces roast or boiled meat, with vegetables in moderation—cabbages, peas, &c.; turnips rarely given, potatoes never. Fresh fruit, a little, after dinner; salad or stewed fruit without sugar. Wine, two or three glasses light white wine. Immediately after dinner a large cup black tea, no milk or sugar. Supper (7.30 to 8 p.m.), in winter always, and in summer occasionally, a large cup black tea, as before; an egg, or a little fat, roast meat or broth; a ham with its fat; Bologna sausage; smoked or fresh fish; about one ounce white bread well buttered; and occasionally a little cheese and fresh fruit. The exercise was of ordinary kind, "varied with relatively rare long walks."

Summing up Dr. Ebstein's ideas, in his own words he contends "that the corpulent may daily take a suitable

quantity of fat without thereby growing fatter," such a practice utilising fat in the food for the prevention of its excess in the body. We cordially recommend his work to the notice of the corpulent. Its tenets, we are able to add, are founded on the latest physiological knowledge we possess regarding food. It is thus a safe guide, because it is a scientific guide; and the thanks of the public are likewise due to Mr. Keane for his admirable translation of the interesting little *brochure*.

Present statistics show that there has been a large increase of doctors in France in proportion to the population.

A woman one hundred and twenty-two years old, Mary Durand by name, is reported in the French journals. She was married in 1783.

A writer in *Hygiène Pratique* states that boots and shoes may be rendered waterproof by soaking them for some hours in thick soap water. The compound forms a fatty acid within the leather and makes it impervious to water.

On the subject of disinfectants, we have had our attention called to "Thymo-Cresol," said to be one of the most powerful disinfectants, deodorisers, antiseptics, and insecticides, and to "contain the three strongest disinfectants yet discovered." For general disinfecting and deodorising use, it can be diluted, we are told, with 100 times its bulk of cold soft water, and at this strength is said to "destroy infection, and to be fatal to all parasitic life." The manufacturers are Ness & Co., of Darlington. We should be glad to hear of any experiments corroborative of the above facts.

Sanitary Appliances, Etc.

SANITARY PAPER.

The Sanitary Paper Company, of 30, Bury-street, London, E.C., have forwarded us a sample of their paper, and of this material, in roll (500 feet long), neatly placed in an ornamental frame, or holder provided with a "patent cutter," by means of which any length of paper can be instantaneously and exactly detached. The price of the holder, with two rolls (of 500 feet each) sent, carriage paid to any part of the United Kingdom is only 5s., and, therefore, no objection to the use of this most desirable article can be entertained on the score of costliness. The utility of such a material for boudoir and lavatory is, of course, now thoroughly recognised. In addition to avoidance of that interminable nuisance, the stoppage of closet drains, there are obvious sanitary and health-aspects of the question which are deserving of attention, and which the use of such material as the Sanitary Paper Company provides tends to further and enforce.

From an analysis of the paper specially made by Dr. Hassall and Mr. Clayton, F.C.S., we learn its absolute freedom from arsenic, lead, and all other deleterious metallic and mineral ingredients. Dr. Hassall certifies its absolute purity, and adds that it is "altogether suitable for the purposes to which it is intended to be applied." The paper is made from pure cellulose—a vegetable substance closely resembling starch in chemical composition. It is unbleached, and, therefore, free from any admixture of chemical products or bases. There can be no hesitation in warmly recommending this latest product of manufacturing enterprise in the interests of health and economy to all heads of houses, to hotel-keepers, and to schools and public institutions of every kind. There are many sources of troublesome illness which may be obviated by the employment of a pure paper like that before us.

MURDOCH'S DIGESTIVE POWDER.

Mr. Murdoch, of 357, Paisley-road, Glasgow, sends us as ample of his "Digestive Powder," the composition of which, we may add, is known to us. We think this powder likely to be eminently useful in cases of indigestion, and especially in those accompanied with acidity and eructation. This preparation contains pepsin-principles, and is, therefore, a true digestive agent, as well as a stomachic and tonic. The dose is half-a-teaspoonful, taken either in a little brandy or in milk, thrice daily, before or after meals.

Our Letter : Box

"Conference [maketh] a ready man."—*Bacon.*

NOTICES TO CORRESPONDENTS.

All Communications for the Editorial Department (including specimens of Sanitary Appliances, &c.), to be addressed to "The Editor of Health," 74-76, *Great Queen-street, London, W.C. Those intended for the Publishing Office to be sent to* "The Publisher," *at the same address.*

Contributors are requested to send stamps for the return of the MSS. *in event of non-acceptance. Every care will be taken to ensure the safety of* MSS., *but the* Editor *and* Publishers *cannot hold themselves responsible for accidental loss.*

Correspondents are requested to write on one side of the paper only. The Editor *disclaims responsibility for the opinions expressed by Correspondents.*

LETTERS TO THE EDITOR.

TEA.

Sir,—With one (to me important) exception I entirely endorse your contributor's paragraph devoted to tea, in the "Family Circle" columns of your excellent Journal. For many years I have adopted the practice of putting the tea upon the water, and not the water upon the tea. Teapot well heated, three-parts filled with quite boiling water; tea gently poured on the surface, cosey placed over say six minutes, a dash of boiling water previous to pouring out, and a perfect beverage is the result, provided always the tea be a genuine article.

Mrs. Thwaites' remarks concerning water "freshly boiled" are invaluable, the importance of which is almost invariably overlooked.

—I am, sir, yours truly, Walter Bumpus.

3, Kenway-road, Earl's-court, S.W.

DR. DOMETT STONE ON VACCINATION.

Sir,—It can hardly be expected that the small band of self-denying men who are endeavouring to obtain repeal of the Vaccination Acts can write elaborate replies at a moment's notice to every puff which is put forward for the benefit of the great vaccination interest; still less would it be reasonable to expect them to go over again and expose old *rechauffés* of impossible and self-contradictory statistics. We do not assert that the main use of statistics is to "tell lies by figures," but certainly the manner in which some tables of death-rates have been dealt with by our opponents would be enough to provoke a smile were it not for the edifice of cruelty and injustice which they built upon this shallow foundation.

Notwithstanding the persistent endeavours which are made to frighten the public about small-pox, in order that "the Local Government Board *should appoint more public vaccinators*, who should be empowered to visit every house in their respective districts, and re-vaccinate all persons who have not the scars of former vaccinations well-marked," &c., we still continue to observe that small-pox has not the slightest effect on the general death-rate.

Indeed, if we were to reason on the *post hoc, propter hoc* principle, we might draw the conclusion that small-pox was highly beneficial to the community, as it is generally found in connection with a diminution of the total mortality. A notable example of this fact, first observed by the late Dr. C. Pearce, may be seen in the report just issued by Dr. Tripe, of Hackney, where small-pox has been unusually prevalent. Contrary, however, to what might have been expected, the death-rate of that district is about fifteen per thousand, which would be a very favourable death-rate for a fashionable watering-place; whilst that of London generally is over twenty per thousand. I need hardly remind the intelligent reader that it is only within about the last fifty years that we have any accurate statistics at all on a large scale, and that exaggerated reports have formerly been issued about the deaths in various countries, calculated on the basis of the small-pox mortality of London and other capital cities—a proceeding the reverse of accurate or scientific.

If your columns are open for the discussion of this question, you will, undoubtedly, have replies to Dr. Stone's figures, which fairly bristle with extravagant, and, indeed, impossible conclusions. But I must content myself with protesting against his supposition that the decline in small-pox, which was produced by the introduction of hygiene, and which began before any considerable number of

persons were vaccinated, should be put to the credit of that operation.

The first serious opposition which was made to the practice of vaccination was on the ground of statistics; and (although the vaccinators have the entire control of that department) it will be the statistical argument, on a basis sufficiently wide to be rational, which will give the *coup de grace* to the whole system of promoting health by the propagation of disease.

A due study of this question has convinced me that in every case in which a decline in small-pox has been claimed for the practice of vaccination (under any of its protean forms), the actual result has been simply that the people have been killed in order to save them from dying. In other words, the general death-rate (and especially the infant death-rate), has been so fearfully increased that, even if epidemic small-pox had been prevalent during the whole time, it would not have added so much to the total mortality. With such facts as these before us (capable of verification at any time), we may hope that Dr. Domett Stone may be given full powers to carry out his re-vaccination of adults. This would, indeed, be the "last dying speech" of the blood-poisoning Act of Parliament.—I am, sir, your obedient servant, Edwd. Haughton, M.D.

Spring Grove House, Upper Norwood, S.E.
April 26, 1884.

Sir,—In conformity with your policy of hearing both sides, will you permit me a few lines of reply to Dr. Domett Stone?

First, I have to object to Dr. Stone's plan of procedure. For equal comparisons find equal conditions; but what greater contrast of conditions are presentable than those used by him. Europe one hundred, two hundred years ago, and now? Greenland 1734 and England 1883? Thibet at any time, and England of to-day? Russia, Constantinople, and England at any time? Are these fit comparisons? To put the question is to answer it. The comparisons are absurd, not on one, but on all points. I must have something like equality of conditions, and then I will admit the fairness of the comparison.

Dr. Stone has made a discovery—that is, that the mortality of small-pox "is so high from the fact of the compulsory Vaccination Act not being rigidly enforced." Like Jenner's discovery, there is nothing in it. The returns show that much more enforcement is not possible. For a few years we have had about 86 per cent. of the births vaccinated. Nearly 9 per cent. died before the operation was enforceable. So we have 94 per cent. vaccinated or dead. For Scotland, this is exceeded. And it seemed impossible greatly to exceed this even there where no organised opposition to vaccination existed. Dr. Stone has put down thoughts, not facts.

I dismiss Greenland, Thibet, Turkey, Russia, &c., for reasons stated, and for no others, and come to England. Now, Dr. Stone seems quite unconscious that the two tables he gives are for *pre-compulsion* times. No compulsory vaccination existed. If, then, the reductions he is so anxious to show were produced without compulsory vaccination, why cry out for more compulsion? But more remains. Dr. Stone must use figures not to elude but to explain his position. The first lines of his paper complain that the mortality of small-pox is so great, the next are meant to show that it is so small! I utterly deny the fictions of Lettsom and other pioneer vaccination partisans. It is impossible to verify them. Let us confine ourselves to scientists like Dr. Farr and Dr. Guy. And, first, Dr. Farr.

Year.	Small-pox Deaths per 100,000 of Living.	Deaths all Causes per 100,000 of Living.
1629 to 1635	189	5,000
1660 to 1679	417	8,000
1728 to 1757	426	5,200
1771 to 1780	502	5,000

Here the total mortality is not more when small-pox is highest than when it is lowest, and if we are in sober truth concerned about life, and not about vaccination, that is the point. And so all through from 1629 to now. In the years when small-pox is highest the total deaths are fewer than when it is lowest. Let Dr. Stone examine Dr. Guy's "250 years of small-pox," and he will find this true. . . . . Small-pox could only have reached the height it attained in the eighteenth century by propagation. See Lettsom's, Jenner's, and other denunciations of the inoculation "murders" as they called them. Now let us come to our century:—

	1801 to 1810	1831 to 1835
Small-pox per 100,000 living	204	83
All Causes	2,920	3,200

Here same phenomena. Small-pox lowest, death-rate highest. Vaccination comes into play now, and so do our Health Acts. Which is most powerful? London, 1861 to 1880 gives us these results, all per hundred thousand living. For 1861 to 1870, for all causes, 2,440; small-pox, 28. For 1871 to 1880, all causes, 2,250; small-pox, 46! Gain on the total 190, but a loss by small-pox of 18! The Vaccination Acts utterly fail to alter what is thus the scientific fact. Our gains are Public Health Act gains, not Vaccination Act gains. Much more remains. Dr. Stone makes a very incautious boast about malignant small-pox. How much better first to have inquired and then written. From hospital reports I give the following:—

Malignant Small-pox in the Vaccinated.

		Cases.	Deaths per Cent.
Homerton	1871–7	235	89·78
"	"	81	100
Hampstead	1876–8	83	74·7
"	"	44	97·7
Deptford	1878–9	21	100
Fulham	1878	22	73
		486	

Doubtful Cases as Regards Vaccination.

		Cases.	Deaths per Cent.
Deptford	1878–9	8	100

Against these 486 vaccinated malignant cases, these reports only give for the—

Malignant Small-pox in the Unvaccinated.

		Cases.	Per Cent. Died.
Homerton	1871–7	10	100
Hampstead	1876–8	70	82
"	"	57	100
Deptford	1878–9	10	100
Fulham	1878	20	80
		167	

The fact is that the great majority of all small-pox cases are vaccinated. The disease follows the eruption, just as it did in Sydenham's day exactly, altered in nothing save this, that on the bulk of its present-day victims are the marks of the vaccine superstition, demanding of the doctors who witness them the renunciation of an absurd, foolish, and harmful rite.—Yours truly,

Darlington, April 27, 1884. Alex. Wheeler.

Sir,—I was astonished to read the paper entitled "Small-pox and Vaccination" in your issue of last week, for surely it is rather late in the day for any one to defend this highly dangerous and cruel practice.

We must assume that Dr. Stone is anxious to get at the truth respecting vaccination, in which case he ought to point out the great danger attending the practice of inserting matter, of which nothing is known, into bodies of which about the same amount of knowledge is possessed.* Dr. Stone also fails to point out the great increase of deaths from small-pox of late years, as the following table shows, for London:—

	Population.	Deaths.
1851 to 1860	2,570,489	7,150
1861 to 1870	3,018,193	8,347
1871 to 1880	3,466,486	15,551

and this great increase in the face of wholesale vaccination!

[Query.—What is the source of our correspondent's figures? He evidently overlooks proportionate increase of population.—Ed. H.]

But the most astounding paragraph in Dr. Stone's paper is that commencing:

"Here, then, 'is confirmation, strong as proofs of Holy Writ,' of the inestimable benefit conferred on mankind by vaccination, which, if efficiently performed, would banish (?) small-pox from the earth."

Without asking Dr. Stone for the "*proofs* of Holy Writ" (which many others besides myself have never heard of and would be very glad to see), I would point out that a startling admission is made by the phrase "Vaccination which, if efficiently performed." Dr. Stone clearly admits, then, that vaccination as at present performed is non-efficient. No one, I think, will be inclined to dis-

* Our correspondent can hardly mean what he says here. The source of animal vaccine is surely known; and we are not quite so ignorant of anatomy and physiology as he seems to think.—Ed. H.

pute this, taking into consideration the large number of deaths from small-pox of *those who have been vaccinated*,* at once showing that this supposed safeguard is one of the greatest delusions that ever took possession of poor humanity; but that blood-poisoning by Act of Parliament should be possible in the year 1884 only shows the widespread ignorance and apathy which prevail on all matters relating to the preservation of health.

A moment's reflection would show any one that vaccination must and does signally fail to stamp out small-pox, for the very sufficient reason that it does not remove the *cause* of small-pox. For, so long as we have an "Outcast London" and other fever-dens throughout the large towns, so long shall we receive from these disease-engendering centres or manufactories, consignments of small-pox and other horrors.—I am, sir, your obedient servant,

Pine-villa, South Streatham, S.W., April 28. G. Imeson.

QUERIES AND ANSWERS.

GENERAL.

V. Cole.—Apply to the publishers.

Alexis.—Mr. Browning might aid you. Ask him.

B. G. and Tricyclist.—Yes; we intend to have papers on bicycling and tricycling in Health. These will be published shortly.

G. O. G.—See the series of papers in Vol. I. Health, on "What to do when Fever invades the House."

Andrew Clarke.—1. You evidently mean the *sphenoid bone*, lying at the base or floor of the skull. 2. The "ligaments" bind bones together.

Kate V., R. G. D., and C. A.—Dr. Andrew Wilson's "Manual of Health-Science" will shortly be published by Messrs. Longmans. It is specially written as a popular guide to hygiene, and for the wants of students preparing for the S. and A. examinations.

Owen Rees.—See chapter on "Protoplasm," in Dr. Wilson's "Chapters on Evolution" (Chatto & Windus).

M. D.—That may be your opinion. It is not ours. You can hold to your opinion, and no one will be one whit the worse.

F. G.—If you forward a letter to us, we shall address it and post it to the author of the paper.

Ben.—Thanks for good wishes. Dr. Wilson's Plymouth lectures were most successful. He will probably visit Exeter in September.

Cercle Nautique.—Opinions vary very much regarding the cause of sea-sickness. There is no unanimity of opinion. We believe it is primarily due to nervous action, reacting on the digestive system.

Alexander Gordon.—1. Certainly not. 2. The Electric belt you sent is merely a piece of flannel into which are sewn discs of metal. It affords support and heat, but produces no electricity whatever. Yes; its price leaves the makers sufficient profit to advertise their quackery very extensively.

A. W. Goore.—Thanks for cutting. We don't think the idea of vegetarianism as a universal dietary is practicable. Its advocates argue from too narrow a basis. Each person is a law for himself and herself in the matter of diet, and just as you have idiosyncrasies to drugs, so you find peculiarities in individuals which may or may not fit them for vegetarianism. That which regulates diet primarily is climate. Man is neither a vegetarian nor an animalian—he takes for food that which lies to his hand, and he is able to adapt himself (within the limits of his constitution) very fully to his surroundings.

Henry Brown.—1. The average height of a lad at 19 (calculated from 7,709 boys and men of healthy grown) is set down at 68·72 inches without shoes, and weight 148·3 lb. (including cloths = 9 lb.). In the industrial class the same details gave 66·02 inches for height and 128·4 lb. for weight. 2. For a person 5 ft. 7 in. high the respiratory capacity represent ·225 cubic inches of air at 60° F. Add (or subtract) 8 cubic inches for each inch above or below this height. 3. Trapeze, dumb-bells, &c. (see review of "Sound Bodies for Boys and Girls" in Health No. 55). 4. Growth varies greatly in different individuals. More or less active till adult stage is reached.

SANITARY.

B. G.—Try Pott's Edinburgh Trap. It effects the disconnection you need.

Olney.—Why not? There is no legal disqualification.

A. L. C.—The experiments were made in Glasgow.

Cotton.—1. Pasteur showed the fact, we believe. 2. Try Bostel's.

Mater.—See that the nursery wash-hand-basin is properly trapped. This is a frequent source of gastric fever in nurseries, through sewage gas escaping into the room.

E. F.—You mean a spirometer.

W. Lawson.—We have tested the waters. No. 2 from the burn is decidedly the better water. There was organic matter in the unfiltered rain water No. 1, which is against its use for drinking purposes. *We can say nothing about* No. 2's exact hardness—that is a matter for chemical analysis. For drinking we say, No. 2 certainly.

J. D.—We fancy Maignen's Filtre Rapide (22, Great Tower-street, London, E.C.), or the Spongy Iron Filter Co.'s Filter (22, New Oxford-street, London, W.) would suit you—according as you base your own predilections in favour of charcoal or iron as a filtering medium. (See recent correspondence on this topic in Health.) Our own opinion is that either of these filters will serve your purpose well—always provided you attend carefully to cleansing them—a *sine quâ non* of *all* filters.

MEDICAL.

H. R. S.—Yes; use Pears'. It is a pure soap, and will not irritate the skin. We should recommend you, for the skin-eruption, to try the lime powders ordered to "A Well-Wisher," in Health, No. 55, and let us hear how you are thereafter. Guard against chills especially.

J. O.—You require more fresh-air exercise; your habits are too sedentary. Regulate your meal hours, and don't allow too long an interval between meals. Give up tea and coffee. Rest after food is essential. For the acidity, take a bismuth tablet after food. You might try also a little Æsculap Water as a counteractive to the constipation; but beware of getting into the habit of taking aperients. You must, we repeat, have more open-air exercise. Glad to be of any further service.

An Admirer.—Your case is simply one of nerve-exhaustion from over-work. The first series of symptoms named by you need cause you no alarm. You had yourself to thank for their occurrence at all, as you know; but there was (and is) nothing unnatural in them. The second symptoms are those due to overwork, and of this, be warned in time. Take plenty of rest—eight hours' sleep, at least; don't work at night, food to be light but nourishing (avoid suppers), and take a teaspoonful of Fellows' Syrup of the Hypophosphites in a wineglass of water, thrice daily, an hour before food. The quack you name and his works are well known to us.

Experience.—Why not try a change of air for a time? You do not seem to be in actual ill-health. Take a holiday; go to the seaside. Rest after food, and take a little Pepsine after meals. Your digestion is really the source of your troubles. Cold sponging should also be tried.

Thankful for Mercies, &c.—The belts you name, which we have seen, are utterly useless as electrical agents. They do not produce electricity. Read Mr. Carpenter's articles in past numbers of Health on such belts. Pulvermacher's belts (194, Regent-street, London, W.) are really genuine in that they produce powerful electrical currents. Try the tonic recommended to "An Admirer," in present number of Health.

Rorie.—There is no dye which will act as you wish without staining the skin slightly. Try Rowlands' Macassar Oil as an application in the first instance. If not bettered, write again, and we will recommend a dye.

Commercial Traveller.—We expect to commence the articles at an early date.

W. Yam.—Look to your digestion. Rest after food. Take Pepsine thereafter. Avoid constipation, and suppers. Give up tea and coffee for a time on trial; and see to the ventilation of your sleeping apartment. Your occupation is, perhaps, too confining—if so, take open-air exercise. If not bettered, write again, giving fuller particulars of food, &c.

David Mason.—The practice is condemned by certain continental authorities, but we are sceptical of the above opinion. We have never met with any exact evidence that the practice is hurtful, and you should yourself be the best judge whether or not you feel any ill-effects.

Femur.—Probably muscular. As we understand you, the pain is not in the knee-joint. Bathe with hot salt and water at night, and rub in warm oil over the seat of the pain.

Tercentenary.—We should strongly advise you to try the Cod-Liver Oil Cream of Mr. Thomson, chemist, Dublin-street, Edinburgh. This will cure your cold, and brace you up besides. Clothe warmly; and, if you have sufficient reaction, you will find cold sponging to the chest each morning to lessen your susceptibility to cold. See also to the ventilation of your bedroom.

Journalist.—1. Try washing the hands in a saturated solution of boracic acid for profuse sweating. Get wo or three ounces of the

* Will our correspondent kindly send us figures and proofs of this statement?—Ed. H.

acid, and dissolve in a quart of water, and use the fluid as a lotion. We have frequently seen such symptoms relieved by quinine and iron taken as a tonic. 2. File and pare the nails regularly and at frequent intervals. 3. We should have boots made by Messrs. Dowie & Marshall or any other intelligent firm, so as to lessen the deformity. Much can be done in this way to render it less conspicuous.

F. K. R.—You must be constitutionally nervous. We sympathise with you, but we think you are too diffident. Why not brace yourself up mentally, and try to cultivate a little of what has been called "a good conceit of yourself." You may possibly suffer slightly from indigestion, and your general health should be looked to. Take ten drops *Fer Bravais* thrice daily in water, and let us hear how you are after a time.

W. Mills.—Let us know precisely if you have experienced any symptoms within the last three years or so, and we will reply to you. Judging from your present statement, we should say no traces remain; but we wait your further information.

A Sufferer.—Are you perfectly certain that you do not suffer from thread-worms? You should see to this, as symptoms like yours often arise therefrom. Try injections of salt and water, or that recommended to "Musical" in Health, No. 55. Hazeline can be had from any chemist. Let us hear the result.

Gwilym S.—See and follow advice to "S. O. D." in Health, No. 55. You suffer from no disease, only a slight weakness, which a little attention will cure.

Lucy Lindsay.—We should like fuller particulars regarding food, habits, symptoms, &c. Kindly send these. Meanwhile try the effect of taking one lead and opium pill, on *alternate* days, say until three or four pills have been taken, and let us hear the result. Do vegetables increase your disorder? and is any pain experienced?

Conway.—Yes; you need have no fear. Quacks invariably exaggerate all such symptoms and troubles. It is their business to do so. No need for further treatment beyond cold sponging and strict attention to general health, with exercise. You must, however, see that your cure is *mental* as well as physical. The tonic should not be taken continuously.

Crimdon.—The remedy you name is practised for that ailment. We cannot say we have much faith in it as such. We prefer ordinary simple remedies. See reply to "S. O. D." in No. 55 Health, as regards tonic and cold sponging.

F. Q. N.—No drug should be taken continuously. Drugs are only aids towards a return to the healthy state. We should advise you to look well to your general health. See to your food, dwelling-house, exercise, ventilation, and, above all, exercise mental cheerfulness. Why not try a change to the sea—Dunbar, North Berwick, and so forth—for a time? Your cure must depend on your care in diet and exercise. In place of the drug you are taking, and which should be left off now, try ten drops *Fer Bravais* thrice daily in water, as a milder tonic; and leave off this in a few weeks' time also. Murdoch's Digestive Powder (357, Paisley-road, Glasgow) is likely also to suit you as a digestive aid. Change of diet will effect good in your case. Above all, don't grow morbid.

N. E. W. O.—It appears to us that the advice you had from your London doctor is eminently sensible. You should study carefully what he says and advises. We do not know that anyone can improve on what he advises, except that to assist your recovery you might find it advantageous to take the tonic recommended to "Lex" in present number of Health for a time. As to diet, your food should be light and nourishing. Your occupation—the heat and confinement—are somewhat against you, but here again your doctor's advice regarding fresh air is eminently useful and good.

F. E. F.—Try touching the warts with a little aromatic vinegar till they disappear. If not cured, write again.

W. S. K.—Thanks for your quotation, of which we may hereafter make use. For our own part we very much doubt the success of any such treatment. Very frequently such "ideas" (especially hailing from America) are much lauded for a time; but common-sense, as well as medical science, tell us that if a man's lungs are extensively eaten into by consumptive action, nothing can truly repair these organs. What *may* be done by treatment, is to favour the healing of the lung-troubles, as is done by cod-liver oil, change of climate, &c. Possibly transfusion of blood *might* act in inducing healing, but in such a grave case we should require evidence, not of one or two cases, but of a whole series of proved consumptive cases so treated. Blood transfused might act as a tonic on the general health, and thus aid healing, but it can have no special action in tubercular disease beyond this. One point, lastly—there is no disease in which quackery plays a worse part than in consumption. Witness advertisements in many journals, of quacks professing to cure even the worst cases. These are examples of men trading on the public credulity, and making capital out of the very natural desire of the public to seek a cure, and to try to derive hope, even when all hope is gone.

S. A.—Look to your diet and discover why, at the end of the week, your trouble lessens. In this way you may cure yourself. Possibly rest acts beneficially in your case. Try eating fruits (apples, oranges, &c.) at your meals. For the pains, wear flannel near your loins, and try hot salt water baths at night. Use Brill's or Tidman's Sea Salt in water as hot as you can bear it.

P. R.—Keep the part constantly and thoroughly clean; apply a little pure Vaseline only, night and morning, and take a little Æsculap Water each morning for a time. Let us hear how you are in a week or so.

Lex—Give up smoking, or certainly be extremely moderate. Nothing depresses the nervous system like smoking. Take a teaspoonful of Fellow's Syrup of the Hypophosphites, thrice daily, in a wineglass of water, an hour before meals for a week.

D. Dodd.—You must *not* brush vigorously, and you must use a *soft* brush in any case. See and follow advice to "Hair," in Health, No. 55, regarding dandriff, and use also the application recommended to "Capillary," in Health, No. 53.

Interested Subscriber.—Pears', certainly, on account of its absolute purity. You will never restore your teeth by aid of soap. Use camphorated chalk, or camphorated magnesia, tepid water, and a medium hard brush.

Grandma E. R.—Yours is a case with which we greatly sympathise. It is one that should be shown to a good surgeon. We can send you an address on receipt of stamped addressed envelope. In such a case only a surgeon, seeing the injury, can determine the best steps to be taken for its speedy healing. All attempts to heal it by lotions and applications without surgical advice are only likely to result in irritation. Don't be despondent.

Cardigan.—Rest after food, and take Morson's Pepsine thereafter, or Murdoch's Digestive Powder, to be had at 357, Paisley-road, Glasgow.

Fifeshire.—Are you constitutionally nervous, or what? There seems to be no adequate reason for your symptoms, save nervous irritability. Try first the plan of looking well to your digestion. Acidity is, in itself, a sign that your food does not digest properly. Follow advice given above to "Cardigan," and write again in a few weeks' time.

A. C. B.—Yours is a case in which we should simply recommend more out-door exercise, plenty of fresh air, cold sponging each morning, and sleeping on a hard mattress. Avoid fluids late at night. You suffer from no disease. Cultivate a cheerful mind, and don't fancy you are ill. As a tonic, try ten drops *Fer Bravais* thrice daily, in water.

W. Talbot.—Try a less-bracing seaside resort if you are afraid of a sea trip—Hastings or Eastbourne, say. If the sea air stimulates your digestion too much, you might try inland mountain air—*e.g.*, North Wales or Derbyshire. As regards your other query, we certainly do not agree with the opinion you had. If that were the only remedy, medicine would be but a poor science. What you mention is perfectly natural in healthy persons, and is in no sense either to be regarded as a disease, or as necessitating the crass remedy proposed. Try cold sponging each morning and brisk friction with a towel thereafter, and with plenty of open-air exercise you will soon judge of the injudiciousness of the advice you received. Where should we all be if such advice were acted upon? Read Dr. Pratt's little book, published by Messrs. Baillière, Tindall, & Cox, London.

W. W. Spiri.—See and follow advice given to "A. C. B.," above. If not cured, write again. Remember that what you complain of is often perfectly natural and usual in healthy persons.

Atheist.—From your description of your symptoms, we should say you are suffering from some slight kidney irritation, due, probably, to digestive disturbance. But our uniform advice in all such cases as yours is to submit your case to a physician. By a series of simple tests we think he will be able in a few minutes to reassure you. There is no evidence in your note that your fears are well-grounded.

George.—You should see a surgeon. Meanwhile take the following for a time:—Iodide of potass three drachms; infusion of calumba, six ounces. A dessertspoonful thrice daily.

J. C.—Yes; the lotion recommended to "Capillary" in No. 53, should certainly be first tried. If not bettered write again.

Rufus.—Rest after food, and follow advice above given to "Cardigan." You should avoid all stimulants—try total abstinence for a month or two; moderate smoking will not injure you.

J. B. N.—We do not think the Hazeline will do any harm; but it may not be effectual. You might try it, however. If not cured, let us know.

Oculist.—By all means use darkened glasses. Messrs. Vale, of Birmingham, make capital spectacles with eye-shades and darkened glass all combined. These were advertised in Health some time ago. They would suit you capitally. We have used them for night-work with great comfort.

[*Continued on page* 80.

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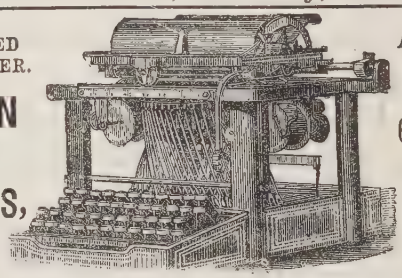

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Rechy.—You can never expect a day's health so long as your digestive system remains as it is. Your swallowing pills continually is only increasing and prolonging your ailment. Begin your cure by making a thorough change in your diet. Give up solids for a time, and drink copiously of tepid water. Food to consist of light, nourishing soups, beef-tea, &c. Avoid tea and coffee. Then take each morning for a time some Hunyadi Janos water; and with your food eat apples and other fruits, stewed prunes, &c., and whole-meal or brown bread. In this way you will begin your restoration to health by securing natural action of the bowels. Let us hear how you progress. Remember, time and patience are necessary.

R. Johnston.—1. You can't expect to be cured all at once. Use the injection once a day only, drink plenty of potash water, and avoid all stimulants. 2. Simply a nervous action, of no consequence. Will disappear in time when health is fully restored. Take ten drops *Fer Bravais* thrice daily in water.

Aristotle.—We don't know the book; its author is an American physician, and editor of a health journal. We certainly don't agree with the statements you quote. The diet should be non-stimulating—that is all. Milk is certainly not a stimulant by any means to a person so situated. Drugs are not of much use, beyond, perhaps, bromide of potass, given in fifteen-grain doses or so at night, occasionally. Where great exhaustion occurs, the tonic recommended to "Lex," in present number, is almost infallible in its action. Pulvermacher's Belts are genuine appliances—most so-called "galvanic belts" are only mere bits of flannel with pieces of copper or zinc sewed into them. To your last query we reply "Yes"; such a condition, or any irritability of that part, is very liable to produce the result named—we mean in an ordinary sense. There is no "internal" result such as you name.

Newtonian.—To all your queries we reply "Yes." You need have no fear. Read and follow advice given fully to "S. O. D." in No. 55 Health.

C. S.—We fancy your symptoms arise from indigestion. Pay strict attention to your food. Rest after eating, take Pepsine after meals, and try a little Æsculap water each morning for a week or so, by way of inducing regular action of digestive tract. The offensive breath depends on stomach, but look well to your teeth also, and eat a Bragg's charcoal biscuit or two daily.

Eyes.—1. Glad to hear our advice has been followed by good result. From the card your oculist gave you, we see your eyesight certainly required spectacles, as we imagined it would. You should not wear them, unless absolutely required, in the street; but in writing or reading they are necessary. Your eyes will improve by attention to general health. Certainly life in a farm, away from books, &c., for a time, amongst fresh air, would do you good. 2. Look to your teeth, brushing daily with camphorated chalk, and wash out your mouth daily with tincture of myrrh and water. *Fer Bravais* (see advice to "R. Johnston" above) will do you good.

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HEALTH

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, MAY* 16, 1884.

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Notes by the Way

"Health is the foundation of all our physical happiness."—*Herder.*

A most interesting note has recently been published by Dr. Hammond, of New York, concerning a curious affection of the nervous system, named "Miryachit" by the Russians. The essential feature of this affection is exhibited in the involuntary imitation by the subjects thereof, of the acts of others. A man was thus seen to imitate, *nolens volens*, such actions as clapping the hands, stumbling and falling, shouting, &c., performed by other persons. The subject had no power, in fact, to resist imitating those whom he saw or heard; a condition of matters somewhat resembling the phenomena of the condition popularly named "mesmerism." Phases of mental action, allied to the Russian "Miryachit," are seen in the "Jumpers" of America. These persons obey any order, however absurd, and repeat words in languages of which they are entirely ignorant. The subjects admitted that it tired them to be "jumped," as the phrase runs.

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Dr. Neale, writing on the above subject, tells us that in Java there are to be found similar cases of curious nerve-action, the Eastern affection being named "lata." He says:—"These individuals are unable to resist the imitation of any sudden sound or movement made by their neighbours. Let any attitude be assumed, however grotesque, and they must pose the same. Should they be carrying anything, however precious, and carefully, down it *must* go if they see any one dropping an article. The best-loved child or the choicest ware must fall under such circumstances. This irresistible propensity to imitate is often taken advantage of by practical jokers. They will rush upon you, to fold you, apparently, in a warm embrace, and suddenly you find yourself in a double embrace. On one occasion I wished to extract a tooth from a young woman the subject of 'lata,' but no coaxing could avail to induce her to open her mouth. At last I took a chair, and she did likewise. I moved it gradually towards her in front, and she as gradually approached me. I then yawned very widely; she followed suit. I then shut my eyes very tight, which act she strictly imitated. Quickly jumping up, I clapped on the forceps, and had the tooth out before she had time to resist further."

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"Some years subsequently she came to England with her mistress, and nearly fell a victim to a practical joke. While waiting at table, her young mistress wished to exhibit her peculiarities to some friends; so, catching her eye, she suddenly reached across the table, seized a very large French plum, and pretended to swallow it. The woman instantly made a dash at the dish, thrust a plum in her mouth, and, after much choking and semi-asphyxia, succeeded in swallowing it; but the situation was such that her mistress did not repeat the experiment." It seems evident that in such cases there is exhibited the effect of a strong mental impression, which travels to the nerve-centres governing movements, and which excites these centres to act, independently of the patient's will. Is there not something akin to this intensified nerve-action in ordinary "weak-willed" persons, who appear compelled, often against their inclinations, to follow the course prescribed by their stronger-willed neighbours?

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Now that the Health Exhibition has been successfully opened, we may look for a prosperous career for the great show, which, unlike most other exhibitions, may most truly be said to unite amusement and instruction in a very thorough and complete fashion. That there is abundance of interest in the Exhibition for all is fully evident from the general accounts of the collections which have reached the public. Even those who desire to be merely amused will find more than enough to interest them in the ancient houses, and in the costume collections which have been formed under the skilful superintendence of the Hon. Lewis Wingfield. The full reports of every department of the Exhibition, which will appear from week to week in the supplement of Health, will enable our readers to form a good idea of the general scope of the collections. It is to be hoped that the various railway companies, with their usual enterprise, will not fail to afford means, in the shape of cheap excursions, whereby persons from all parts of the kingdom may be enabled to visit what promises to be one of the most remarkable shows of the century.

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The *Homœopathic World* (of the existence of which we frankly confess to have been completely ignorant until an anonymous benefactor supplied us with the number for the present month) complains that we have misrepresented the state of that system of medicine which owns Hahnemann as the author of its being. The mind of the *Homœopathic World* has been perturbed by a statement—contained in a review of a work in Health, No. 52, to the effect that homœopathy was scarcely in actual existence in the medical world of to-day. We are then informed that no fewer than 5,000 homœopathic physicians actually exist; and this item of news is twice conveyed to the waiting world in capital letters. For the news thus afforded us we are devoutly thankful; but there are one or two points which the editor of the *Homœopathic World* might find it advantageous to discuss in further detail. For example, does this gentleman mean to tell us that the 5,000 physicians practice the same invariable system of medicine? Again, assuming his figures to be correct, does the proportion of homœopathic practitioners to the entire medical profession indicate that the system is in such a highly-flourishing state, after all is said and done? The homœopathic principle of "small doses" is evidently reflected in the common sense of the person who thinks that because 5,000 physicians out of the entire profession profess homœopathy, such a fact testifies to the great influence and magnitude of the system in question. Homœopathy has never appealed either to the science or to the common sense of the age, and the editor of the homœopathic organ has supplied us with a fitting term for the remarks in which he attempts

a criticism of our views, when he introduces to our notice the name "twaddle" in the course of his "infinitesimal" lucubrations.

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There are two forms of social nuisance which often disturb, to a very serious extent, the amenity, happiness, and health of life. We allude to the beating of carpets carried on amidst crowded surroundings, and the howling and barking of dogs—the latter nuisance being one often attended, in the case of invalids, with serious results in respect of the want of rest at night, and the continual disturbance of waking hours as well. The beating of carpets is, doubtless, a very necessary piece of domestic procedure; but it is too often carried out under insanitary, and even dangerous, conditions. No carpet-beating should be allowed to be carried on in confined spaces, or near dwellings. In such cases, the dust, and the germs of any diseases which may have affected the household are certain to be wafted into the houses in the neighbourhood, and may thus propagate misery and disease. All carpet-beating should be carried on in free open spaces, and at hours when the peace and rest of the community are not liable to be disturbed. Too frequently the process is effected in lanes, back gardens, and like places. The dangers and uncleanly nature of such operations, are sufficiently obvious to dispense with the necessity for further comment.

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Dr. Andrew Wilson's lectures in Plymouth were attended by earnest audiences, who followed the various details with eager interest. It is more than evident that a great future awaits the popular teaching of the facts and laws of health and physiology. What Mr. Proctor and others are doing for astronomy and cognate sciences, may yet be accomplished for those branches of knowledge which bear directly on the physical well-being of the people. It is probable that Dr. Andrew Wilson may shortly arrange an extended and systematic tour in England for the delivery of his lectures on physiology and health. Such a tour would discharge similar functions to those effected by the lectures which Dr. Wilson has delivered for some years past in Scotland, under the auspices of the trustees of the late George Combe. The "Combe Lectures" have become a household word in the North, and there seems no reason why teaching of a like nature should not be successfully carried on south of the Tweed. A notable fact in connection with the Plymouth lectures was the extremely full and correct reports which the Press of Plymouth and district gave of the lectures. Each day the lectures were reported at length, and the educative influence thus exerted is pleasing to reflect upon. Even the *Western Figaro* aided the cause of popular science by its humour and by its cartoon showing Dr. Wilson in the act of expounding the absurdities of modern fashionable waists.

Medical and Sanitary Exhibition, 1881.—Award of Merit.—Diabetes. Van Abbott's Gluten Bread, and all other suitable Foods for Diabetic Patients. Dietary Tables and Price Lists post-free on application. Van Abbott, 5, Princes-street, Cavendish-square, W.—Delicate Children and Adults Suffering from Nervous Depression. Van Abbott's Hypophosphite of Lime Biscuits, for Delicate Children, especially those suffering from Deficiency of Bone, Weak Joints, or Debility, and Adults suffering from Nervous Depression. Each Biscuit contains five grains of the Hypophosphite of Lime. "Quite free from disagreeable taste, and taken willingly by Children, and certainly provide an excellent means of administering this valuable compound. Our analysis proves the accuracy of the printed descriptions on the labels of the boxes. The Biscuits were suggested by Mr. W. Adams, of the Orthopædic and Great Northern Hospitals." — *Lancet*, Nov. 4, 1876.—Van Abbott, 5, Princes-street, Cavendish-square.—[Advt.]

Original Essays

"Life is not to live, but to be well."—*Martial.*

CURIOUS FACTS ABOUT MEMORY.

By Dr. Andrew Wilson.

By the term "Memory" we mean the "reproduction of past states of consciousness," to quote Dr. Carpenter's definition—that calling forth in review before the consciousness of what *is*, the consciousness of what *was*. In sober truth, there is no subject within all the wide range of mental physiology more interesting than that which deals with the nature of this wondrous mode of recalling to the "mind's eye" the forms, features, and incidents of persons and events which occurred in the "long ago" of a life. No one may pretend that we have a full explanation of "memory" within our grasp, and still less have we any exact information concerning the manner in which events are registered, localised, associated, and thereafter reproduced by the mental or psychical forces. We can only at present study the phenomena which our mental life exhibits to view in respect of memory and its powers. We can at least, pay attention to the apparent succession of events which characterise "memory" at large; and we may, in addition, note certain interesting facts which concern "memory" in its relation to those unusual states of brain, induced by injuries, or resulting from the inroads of more mysterious disease.

Memory, like every other faculty of mind and brain, must be studied from this double point of view—namely, from the normal aspect of healthy brain-action, and from the side of disease. The latter method of investigating nervous actions, or indeed the functions of any part of the living organism, is as necessary as the former. It is only when the facts elicited by a study of natural functions are found to be correlated with those derived from the knowledge of diseased action, that the physiologist can safely verify his theories and substantiate his views and opinions. But for the knowledge of what a study of brain-disease has disclosed, in its telling effects upon the life of the afflicted, many of the conclusions of modern life-science would have been left unsupported and unconfirmed. The bye-ways of life often lead as directly to the discovery of truth, as do the pathways of direct experiment. In the case of "memory," this observation holds extremely true. Some of the most curious facts concerning memory at large, are derived from the domain of the physician, and from a study of abnormal brain-action. Life, in short, is a two-sided matter—it presents us with its healthy and with its diseased aspects; and it is only when a full comparison of the observations derived from both sources becomes possible that any details, approaching in their nature to a complete understanding of living functions, can be mastered and verified.

It may be convenient, as well as explanatory of much that is curious in the phenomena of "memory," if, in the first instance, we glance at certain results to the memory-faculty which follow injuries to the brain. Mr. Savory, F.R.S., in the *Lancet* for November, 1882, relates certain facts which must possess for all students of memory a high degree of interest.

"The curious fact," says Mr. Savory, "that in concussion of the brain not only may there be complete loss of consciousness for a considerable period after the injury, but that in some cases after complete recovery there may be total loss of memory of all events which have happened shortly before the injury, has not, perhaps, received the

attention it deserves. The following cases may be taken as examples :—

"The driver of a hansom cab was knocked off his box by an omnibus at the top of Newgate-street, and brought to the hospital in a state of complete unconsciousness from concussion. From this he speedily recovered; but, at least for several weeks after, when he appeared to be in every respect quite well, he could not in the slightest degree recollect what he had done or seen, or where he had been *in the half-hour immediately before the accident.* It was known that within that time he had taken up a passenger at Cornhill, and driven along Cheapside and Newgate-street, yet of this he never had the faintest recollection; but for all events up to this time his memory was excellent.

"Again, a gentleman was thrown from his pony at polo, and picked up quite unconscious, in a state of concussion. He recovered from this in the course of two or three hours, and in a few days was as well as ever. But he could never recollect some striking events in the game which occurred *within half-an-hour or so of the accident;* yet up to this blank period his memory was minute and accurate.

"Now, what happens in such a case? I suppose no one can tell. The substance of the brain is shaken, and presumably for a time damaged in some way or disturbed; or, as we may say, its nutrition is temporarily impaired, and thus may subsequent loss of function be accounted for. The recollection of a bygone event shows that some impression which the brain receives at the time has been registered; and this must be, I suppose, by some change, however subtle, which is more or less durable. Does the violence of the concussion somehow interfere with the registration of such change; wiping out, as it were, the record before the ink is dry? But such guessing as this, only shows how very far I am from understanding the fact."

A similar series of cases has been recently placed on record in the *Edinburgh Medical Journal*, and republished in the "Transactions of the Medico-Chirurgical Society of Edinburgh" (Vol. II. New Series; Session 1882–83), by Mr. Joseph Bell, F.R.C.S., of Edinburgh. The author remarks, firstly, that disturbance of the mental faculties is a common symptom of almost all head-injuries, from the slightest to the most severe. Such symptoms as unconsciousness, loss of recognition of one's individuality, giddiness, &c., are familiar enough as resulting after injury to the head and brain. But what has been less distinctly noted, according to Mr. Bell, is the fact (also referred to by Mr. Savory) that in a certain number of such cases of injury it is found that the patient "has, much to his own surprise, *forgotten entirely*, not the accident itself and the succeeding circumstances only, *but a certain length of time, varying in different cases from minutes up to hours, and even days, with all its actions, pains, and pleasures before the accident happened.*" Mr. Bell's cases present us with some interesting examples of the fact in question. A learned and very able man, nearly fifty years of age, was rendered unconscious (for probably not more than five minutes) by the upsetting of a coach, sustaining two scalp wounds in the accident. Three days after the accident he voluntarily confessed "that he had lost memory, not of what happened after the accident, but of the few minutes which had passed before it." A lad aged nineteen was rendered unconscious for about twenty minutes by a severe concussion, sustained in a railway accident. On recovering, he remembered nothing whatever of the accident, or of occurrences before it, such as his walking to the station, and getting into the carriage. Mr. Bell remarks that this loss of memory is frequently seen after railway accidents, and the unfortunate subjects may on this account become very confused in a witness-box, and may even be credited with shamming and imposture.

A young miner sustained a fracture of the skull, and passed through many days of unconsciousness. The accident happened on a Monday, he having then gone to his work sober and collected; yet he had completely forgotten everything which had occurred on the previous Sunday, and the greater part of Saturday afternoon and evening. A foreman in a brewery sustained a severe concussion by falling down a deep well. On recovery, he remembered nothing concerning the events which immediately preceded the injury. He could only make guesses at the nature of his occupation, and could not explain what he was doing to the well or to its rope. Previously to his complete recovery this man showed a distinct loss of ordinary memory for facts and events long preceding his injury. On recovering consciousness, Mr. Bell found him odd in his behaviour for some days. He maintained that his surgeon and nurse were "duffers" because they had kept him on low diet. During the first period of recovery he could not recognise his wife, did not know he had such a relation, and so on. Later on he recovered all his faculties, laughed at his former delusions, but could not recall "the lost hour or two immediately preceding the accident."

From the *Lancet* of April 19th, 1884, we extract the following cases, in further illustration of this curious affection of the memory :—"On Dec. 28, 1882, an intelligent boy, aged twelve, was admitted to the Bradford Infirmary, under Mr. Spence, suffering from concussion of the brain. He was one of the unfortunate persons picked out from amongst the *débris* at the Newlands Mill chimney disaster. The accident occurred about 8.15 a.m., and the lad was brought to the infirmary some two hours later in a state of complete unconsciousness. There was no external injury, with the exception of an unimportant laceration of the right leg. For five days he lay rolled up like a ball, unconscious of everything. On the fifth day he spoke for the first time, and after this gradually came to himself. He was discharged completely cured shortly afterwards. This patient remembers nothing of the accident, not even going to work the same morning. The last thing remembered, was going to a circus on the previous afternoon in company with another boy. They set out from home with the intention of going to an entertainment at the Mechanics' Institute; but it was so crowded that they were unable to obtain admission, and went to the former place instead. He remembered nothing of the performance at the circus, and nothing afterwards; from entering the place of amusement to the time of regaining consciousness his memory was a complete blank.

"The second case is that of a fairly intelligent boy, aged fourteen, admitted under Dr. Rabagliati. He had fallen from a viaduct in course of construction in the neighbourhood, and was brought to the infirmary some hours afterwards in an unconscious condition. For three weeks he lay like a log, but about this time he showed signs of coming to. At first he was very foolish—would get out of bed and lie upon the floor until removed by the nurse, throw his plate away, &c. . . . . Like the other case, there is a blank in the boy's memory. The last thing he remembers before the accident is saying his prayers the night before. He cannot recollect what he did or saw between this act and the accident next morning. His memory up to this blank period was excellent."

The "Spécialité" Lime Juice, for family daily use throughout the year, has not the usual musty flavour; will not turn mouldy; may be obtained of Chemists and Grocers.—Feltoe & Sons, Albemarle-street, London, W.—[Advt.]

Mr. Spence adds :—"The following case has been related to me by Dr. Rabagliati. A young lady, very intelligent, a teacher in an institution, went out for a drive with a lady friend. They drove into the country for several miles, and stopped at a roadside inn to give the horse a drink. To enable the horse to get at the water better, the blinkers were removed. Just at this moment something frightened the animal, and it bolted with the carriage containing the young lady (the friend had previously alighted). It had not gone far when the carriage came into collision with a wall, and the young lady was thrown violently to the ground. She was picked up in an unconscious condition, and removed to her home, where she was attended by Dr. Rabagliati. There was a scalp wound, and some severe contusions, but no fracture could be detected. She remained unconscious for some hours, and in a semi-unconscious condition for ten days afterwards, but in the end made a complete recovery. In this case also, there was a total loss of memory for two or three hours before the accident. The patient remembers putting on her bonnet before starting, but going down-stairs, entering the carriage, and the journey, are all forgotten. Her memory for events up to this time was accurate."

In our next paper we shall endeavour to discuss the probable meaning of these curious and interesting facts.

PUBLIC PARKS AND OPEN SPACES.

By George Howell, F.S.S.

SECOND PAPER.

At the instance of Sir John Sinclair, in the year 1795, a Select Committee of the House of Commons was appointed "to take into consideration the means of promoting the cultivation and improvement of the waste unenclosed and unproductive lands of the Kingdom," Sir John Sinclair being appointed its chairman. This Committee, having sat and taken evidence, presented its first report on Dec. 23, 1795, and its second report on April 27, 1797. At the end of the latter a series of resolutions were appended, "with the view of facilitating inclosures." The most important of them was the last, inasmuch as it indicated immediate action, as follows :—"That the Chairman do move the House for leave to bring in a Bill or Bills pursuant to the above resolutions." This led to the re-appointment of the Committee, with instructions "to consider the most effectual means of facilitating Bills of Inclosure." On April 17, 1800, a report was presented on "the most effectual means of facilitating, under the authority of Parliament, the inclosure and improvement of the waste, uninclosed, and common land of the Kingdom." The result of this report was that a general Act was passed in 1801—41 George III., c. 109—its purpose being to render inclosures cheaper, and therefore easier, by the enactment of clauses common to all such Acts, and up to that time inserted in each separate private Act. The main object of the inquiries and reports of those Select Committees, and of the legislation that followed, was the bringing into cultivation of unreclaimed waste lands, with a view to their future productiveness. The sparseness of the population at that time did not need that special provision should be made for the preservation of open spaces, and the thought of future generations requiring such provision does not appear to have entered the heads of the statesmen of that day.

From the date of the passing of the statute referred to, in 1801, to the year 1845, special inclosure Acts had still to be obtained, though the main features of all such Acts were more general in their character and application than they had previously been. It should be noted that the "rights of the lord of the manor" were scrupulously reserved under the General Inclosure Act, 41 George III., c. 109, unless expressly intended to be barred by the provisions of that Act. The 6 & 7 William IV. c. 115, passed in 1836, afforded further facilities for inclosure by making it lawful for two-third parts in number and value to inclose, subject to certain provisos as to consent. It, moreover, legalised the land peculation and appropriation which for years had been going on, by enacting that lands inclosed for more than twenty years were to be deemed ancient inclosures, which was equivalent to conferring upon the unlawful occupiers all the rights of private ownership. Division, allotment, and compensation to living part owners, were to be dealt with by Commissioners. The most important features in this statute were the special reservations :—(1) As to London, no inclosure of common lands or open fields was to take place within ten miles of the City ; and (2) no inclosure of common land or open fields was to take place within certain specified distances of other towns, having 5,000 inhabitants and upwards. The powers conferred under this Act were somewhat extended by the 3 & 4 Victoria, c. 31, in 1840. It will be seen that the authors of those Acts had a dim forecast of the possible requirements of future generations, by enacting provisions for preserving common lands adjacent to large towns.

During the forty-four years that elapsed between the passing of the General Inclosure Act, 41 George III., c. 109, and the Act of 1845, presently to be more specifically referred to, above *three millions* of acres must have been inclosed under the sanction of Parliament. The activity of lords of manors, and others claiming special rights over unenclosed lands, may be judged by the following facts :—From 1801 to 1810, no fewer than 941 Private Inclosure Acts were passed ; from 1811 to 1820, they numbered 780 ; and from 1821 to 1830, they amounted to 215 ; the total for the thirty years being 1,936 Private Special Inclosure Acts. And it is not improbable that of the 825 other Private Acts passed during the same period, having reference to private estates, many of them effected Parliamentary sanction to inclose portions of waste land contiguous to the estates of those obtaining such Private Acts. Unfortunately, numbers of those Acts are not printed, and no record exists of their contents, except in the hands of those for whose benefit they were passed. One thing, however, is certain, namely, that in the matter of common lands, posterity has been robbed of its heritage, and the present and future generations have, and will have, to pay a high price for the right of enjoying lands that once rightfully belonged to the community—or a portion of it—the inhabitants of the localities in which the common lands were situate.

In the year 1845, chiefly owing to the exertions of Lord Lincoln, afterwards Duke of Newcastle, a new and brighter era of legislation was entered upon ; thenceforward, all schemes of inclosure were to be examined by Inclosure Commissioners, appointed under the General Inclosure Act, the 8 and 9 Vict., c. 118, two of whom were to be appointed by one of her Majesty's Principal Secretaries of State, the other being the First Commissioner of Woods and Forests for the time being, who was

Pure Water is such a vital necessity that, without it, illness is certain. None are more prone to the ill effects when impure than the young. To ensure a pure supply send a post-card to the London and General Water Purifying Company, Limited, 157, Strand, London, W.C., who will return particulars post free.—[Advt.]

Chappuis Daylight Reflectors for Counting-houses.—69, Fleet-street.—[Advt.]

to be the chairman. When, in 1851, the Office of Works and Buildings was separated from that of Woods, Forests, and Land Revenues, by the 14 and 15 Vict., c. 42 (1851), it was enacted that the First Commissioner of Works and Public Buildings shall be the *ex officio* Inclosure Commissioner. The same principles underlie this inclosure statute as were recognised in all the previous ones, namely, the expediency of inclosing and improving common and other lands, with a view to their cultivation, and the productive employment of labour; and it sanctioned still further the pernicious notion that lords of manors had prescriptive rights as to inclosure. Section 12, however, prohibited the inclosure of wastes of manors and lands subject to indefinite common rights at all times of the year, unless the sanction of Parliament had been previously obtained for that specific purpose. By the fifth Amendment Act, 15 and 16 Victoria, c. 79, 1852, § 1, inclosure was further restricted, for it was enacted that *no* land shall be inclosed without the authority of Parliament in each particular case. The whole procedure as to inclosure was clearly defined and laid down in the principal Act, the lands that might be so inclosed being enumerated under five separate heads. No part of the New Forest, or the Forest of Dean, and no town or village greens were to be inclosed. And no lands (1) within 15 miles of the City of London; (2) within 2 miles of any city or town of 10,000 inhabitants; (3) within 2½ miles of one of 20,000 inhabitants; (4) within 3 miles of one of 30,000 inhabitants; (5) within 3½ miles of one of 70,000 inhabitants; and (6) within 4 miles of one of 100,000 inhabitants, were to be inclosed without the previous authority of Parliament in each particular case. By the eighth Amendment Act, s. 27, provision is made for public exercise and recreation grounds for the benefit of the labouring poor. The recognition of those claims is still further provided for by affording facilities for allotments and otherwise, all of which purposes are to be considered as superior, rather than subordinate, to all other claims whatsoever.

Excellent as these and many other of the provisions in the Act were, as well as the rules and regulations laid down for the guidance of the Commissioners and their assistants, with the avowed object of protecting the rights of the poorer commoners, it was soon found that, instead of protecting the rights and privileges of the weak, as it was their duty to do, the newly-appointed Inclosure Commissioners gave every facility to lords of manors to continue their encroachments, the result being that within a period of some twenty years about 320,000 acres were inclosed, hardly 3,000 of which were reserved, either as recreation grounds, or as allotments for the resident poor.

While the great majority of architects undoubtedly do not give sufficient consideration to problems of heating and ventilation as affecting private dwellings, it does not seem to us that there is any urgent need of providing a separate flue in each bed-room to carry off the odours of the ordinary chamber-pot. When these are thoroughly cleansed every morning, as they should be, they produce no nuisance and are not a source of danger. Every sleeping-room should have a fire-place and chimney-flue, and care should be taken that these are kept open, and not stopped up with fire-boards, &c. This is all that is necessary for an exit or foul-air flue, but means for the admission of fresh air should be provided also; and this is precisely what architects fail to do, and to which their attention should be specially directed.

Public Health

"Health is the first Wealth."—*Emerson.*

EARTH-BURIAL AND CREMATION.

By A. G. Cobb.

(From the *North American Review.*)

I.

Time and experience test the works of man, and the highway of progress is covered with the fragments of countless inventions. The creeds, the dogmas, the social regulations of one age, become the by-words or the antique curiosities of the next. Men do what they can, and coming generations pardon their errors, but judge their works as they ought.

What is good, lives; what is bad, dies—this is the general rule. When, therefore, a custom like that of burial has existed for many centuries, a strong presumption arises in its favour. Its antiquity is offered as a voucher for its wisdom, and the rule that we have stated is rigidly applied. Let us not forget, however, that, to respect a custom for its antiquity, no unnatural causes must have tended to prolong its life. Resting solely upon its intrinsic merits, it should challenge and survive the scrutiny of unbiased minds. Judged by this standard, the antiquity of burial avails it nothing, while our respect for the custom itself will lessen in proportion as we learn how it was established. For centuries, by the civilised nations of Greece and Rome, burning on the pyre was the usage regarded as most honourable and appropriate. At first, it is not probable that the funeral customs of the Christians differed in any marked respect from the customs of those who clung to the ancient faith. They interred in the same places, and they even painted and engraved upon their catacombs representations of the heathen gods and goddesses.

The contrast in time became greater, and no sooner had the Christian religion become a power in the State than its followers, always inimical to cremation, made haste to abolish the practice. They were influenced in this, not by the Scriptures, for both Old and New Testaments are silent on the subject. The causes are found in a prejudice and a superstition. Cordially hating the old mythology, it was easy for them to dislike its followers and their customs. The pagans of Europe burned their dead; and, therefore, the Christians stigmatised burning as a pagan custom. Being prejudiced, they refused to adopt a good habit that their enemies possessed; being illogical, they totally disregarded the fact that, while some heathen nations had used the torch, others had plied the spade, and therefore cremation, any more than inhumation, should not be taken as a symbol of paganism.

Another reason contributing to the revival of burial, was the belief in the body's resurrection. That the trumpet would sound and the dead come forth was a doctrine literally accepted in a physical as well as in a spiritual sense. Again, a notion was prevalent that the Christian's body was in some peculiar sense redeemed and purified. It was "a temple of the Holy Ghost." Though language like this may baffle our comprehension, yet the phrase sounded well, and had due effect. The old precept of

Scott's Midlothian Oat-Flour.—Messrs. Scott, of 82, York-street, Glasgow, have prepared a singularly pure and nutritious "Oat-flour," which bids fair to take high rank among the food products which are specially adapted for infants and invalids, and for the use of dyspeptics in particular, whose digestion is weak, and whose stomachs refuse to assimilate foods of ordinary kind.—Ed. Health.—[Advt.]

one of the Twelve Tables, "Hominem mortuum in urbe ne sepelito, neve urito," was set at naught. Inanimate "temples of the Holy Ghost" by the score were encased in the niches and corners of churches, and many a mouldering monk unintentionally counterbalanced the good deeds of his life by the disease that he generated after his death. The superstitious reverence in which the tombs, bodies, and even bones of the saints were held, enhanced likewise the love of the faithful for burial. The pious Mussulman turns not to the tomb of the Prophet at Mecca with greater reverence than did the early Christian to the grave of saint or martyr. "In the age," says Gibbon, "which followed the conversion of Constantine, the emperors, the consuls, and the generals of armies devoutly visited the sepulchres of a tent-maker and a fisherman."

This was an age of miracles, and the skeletons of saints were more valuable to the clergy than gold or precious stones. "There is reason," adds the historian, "to suspect that Tours might not be the only diocese in which the bones of a malefactor were adored, instead of those of a saint." By a heavenly vision, the resting-place of the Martyr Stephen was revealed to Lucian, a presbyter of Jerusalem. In the presence of an innumerable multitude the ground was opened by the bishop, and when the coffin was brought to light, the earth trembled, and an odour as of Paradise arose, which instantly cured the various diseases of seventy-three in the vicinity. In solemn procession the remains of Stephen were transported to a church constructed in their honour on Mount Sion; "and the minute particles of those relics—a drop of blood, or the scrapings of a bone—were acknowledged in almost every province of the Roman world to possess a divine and miraculous virtue." The grave and learned Augustine, the most profound theologian of his day, in attesting to the innumerable prodigies which were performed by the relics of St. Stephen, enumerates above seventy miracles, of which three were resurrections from the dead, in the space of two years. These incidents of unquestioning and child-like faith, viewed perchance with pious rapture by those who bewail the sceptical spirit of our day, illustrate the intellectual capacity of the age, and help largely to explain the preference of the early Christians for burial. The phantoms of the grave revealed the constitution of the invisible world, and convinced them that their religion was founded on the firm basis of fact and experience; while the fragments of mouldering saints, gathered with reverent care, shielded them from accident, cured their diseases, and restored their dead to life.

Well might the faithful adore the tomb when it yielded such priceless treasures. With a superficial knowledge of the history of the Christian Church, one can readily understand how the practice of inhumation would be insured a long life on receiving the stamp of priestly approval. Even at this early date the temporal power of the Church existed in fact as well as in name; and public opinion was largely influenced by the views of the clergy—a body extremely jealous of their privileges and ready to brand with the name of heresy any undertaking or teaching believed to be in the most remote degree capable of affecting their dogmas or emoluments. As early as 385 A.D., at the time when the bones of St. Stephen first began their wonderful work, Priscillian was condemned to death as a heretic at the Council of Treves. For fourteen hundred years afterward the faggot, scaffold, axe, and rack were in constant use, and hundreds of thousands of human victims were demanded for the maintenance of Christian doctrines.

When the noble Bruno was burned at Rome, the special charge against him was that he had taught the plurality of worlds, a doctrine repugnant to the whole tenor of Scriptures. When John Calvin caused Servetus to be roasted to death over a slow fire at Geneva, the offence of the philosopher lay in his belief that the genuine doctrines of Christianity had been lost even before the time of the Council of Nicæa. "Heresy" was a word whose elastic meaning embraces every offence, real or imaginary, against the doctrines and regulations of the church; and the assertion of the Bishop of Lincoln, in 1874, that a revival of cremation would destroy belief in a final resurrection, if proclaimed from one to fourteen centuries since, would have received universal assent.

It is said that bromide of ammonium when taken in small doses will absorb fat and diminish the weight of the body with greater certainty than any other known remedy.

Decoction of quassia, applied to mosquito bites, constitutes an excellent remedy for the relief of the itching and irritation. When applied to the exposed portions of the body it is also a preservative against the attacks of these very disagreeable and annoying insects.

Nature's Substitute for Chloroform.—Count Ranzau, the "Streit-Hans"—"Rowdy Jack," as his comrades used to call him—once received three dagger-stabs before he knew that he was wounded at all. Soldiers, storming a battery, have often suddenly broken down from the effects of wounds which they had either not felt, or suspected only from a growing feeling of exhaustion. Olaf Rygh, the Norwegian Herodotus, tells us that, when the old Baresarks felt the approach of their end, they robbed death of its sting by drifting out to sea in a scuttled or burning boat, and thus expired, "screaming the wild battle-songs of their tribe." The Roman gladiators shouted and laughed aloud while their wounds were being dressed. A scalded child sobs and gasps for a therapeutical purpose; instinct teaches it the readiest way to benumb the feeling of pain. The physiological *rationale* of all this is that rapid breathing is an anæsthetic. In a paper read before the Philadelphia Medical Society, May 12, 1880, Dr. W. A. Bonwill ascribes that effect to the influence of the surplus of oxygen which is thus forced upon the lungs, just as by the inhalation of nitrous-oxide gas (which is composed of the same elements as common air, but with a larger proportion of oxygen), and mentions a large variety of cases in his own practice where rapid breathing produced all the essential effects of a chemical pain-obtunder, without appreciably diminishing the consciousness of the patient. Persons who object to the use of chloroform (perhaps from an instinctive dread that in their case the ether-slumber might prove a sleep that knows no waking), can benumb their nerves during the progress of a surgical operation by gasping as deeply and as rapidly as possible. "One of the most marked proofs of its efficacy," says Dr. Bonwill, "was the case of a boy of eleven years of age for whom I had to extract the upper and lower first permanent molars on both sides. He breathed rapidly for nearly a minute, when I removed in about twenty seconds all four of the teeth. He declared there was no pain, and we needed no such assertion, for there was not the slightest indication that he was undergoing a severe operation."—*Popular Science Monthly.*

Scott's Midlothian Oat-Flour.—There is no preparation which can be assimilated with greater facility than such a flour as this. Those who suffer from indigestion might substitute for their ordinary breakfast materials this flour, prepared according to the recipe given by Messrs. Scott and printed on the tins.—Ed. Health.—[Advt.]

The "Boncontour" Stay-Belt and other Orthopædic Apparatus, made by K. R. Schramm, Orthopædic Mechanician, 64, Belmont-street, Chalk Farm-road, London, N.W.—[Advt.]

Hospitals and Hospital Work.

"Heal the Sick."

MEDICAL SCHOOLS AT WORKHOUSE INFIRMARIES.

An important proposal has, we believe, been laid before the Local Government Board by the Guardians of St. Mary Abbott's, Kensington, acting upon the recommendation of their medical officer, Mr. H. Percy Potter. This gentleman aims at nothing less than the establishment of a medical school and clinical teaching in his infirmary. He proposes to admit six students for an hour twice a week, to give them the usual bedside instruction, and when the hour is over, to see them safe out of the institution. The clinical teaching would count, in conjunction with the West London Hospital, as part of the medical student's professional education. The medical officer will be entirely responsible for the conduct of the students, who will on no pretext be allowed to examine or question patients indiscriminately, nor will any patient be made the subject of demonstration against his or her will.

As it seems to us, we have here the germ of the greatest reform that can possibly be introduced into the management of our State hospitals. The principle hitherto has been one of seclusion and secresy. A workhouse infirmary has been too often a sort of prison into which the light of the outer world with difficulty penetrated. It is difficult to obtain that free entrance into many of these institutions which is essential to proper inspection, and without public and voluntary inspection they are apt to get into slovenly and careless ways, and the medical and nursing standard is allowed to fall decidedly below par. What is wanted is the free breath of public opinion, and there is no better mode of introducing this than the institution of clinical lectures. The admission of students must involve the maintenance of a high standard of work, for unless the medical officer and his nurses understand their duties, it is clear that the students will soon give up attending; the reason would soon get about and the inefficient elements be removed.

We are not sure that the instruction of the medical officer would be sufficient in all cases, though at Kensington there can be no doubt on the subject. It is not every infirmary, however, that possesses so able a medical superintendent as Mr. Potter; and we should be afraid that in some infirmaries the cliniques of the resident officer would be of less value than the students would naturally demand, and his influence might not always be of that enlightened and reforming character which is so necessary to the well-being of the patients and the standard of the nursing and attention. We are glad to welcome Mr. Potter's proposal as the beginning of a great reform, but we do not believe that reform will be thoroughly carried out until not only the resident doctor, but a staff of visiting surgeons and physicians are encouraged to conduct cliniques through the wards of workhouse infirmaries. The visit of a first-rate surgeon would bring new energy and zeal into the management and work; such a visitor followed by his school would not tolerate for a moment the sort of inefficient nursing and organisation that we are sorry to say may not seldom be observed in infirmaries, and the matron, doctors, and nurses would all be put upon their metal to meet the demands of a man whose name and influence would give the power to remove obstructive elements and to enforce thoroughly scientific management. Medical schools, in the sense of lecture-rooms, laboratories, and dissecting theatres, are not desirable in workhouses; but the influence of a body of visiting surgeons and physicians, of the same class as those who visit the voluntary hospitals, is in our opinion a *sine quâ non* in the future of workhouse infirmaries, if they are ever to approach the standard of hospital nursing and management.

It may be objected that there is not the same material for instruction in workhouse infirmaries that there is in voluntary hospitals, and that leading doctors would not care to take their students to any but the best places for instruction. This is a serious mistake, and Mr. Potter argues strongly against it. Workhouse infirmaries not only present numerous cases of an acute order, but are particularly interesting in affording opportunities for lengthened observation of those chronic cases which are never met with in the voluntary hospitals, or are only seen there for a very brief period. That the leading physicians and surgeons would object to visiting the infirmaries is a prophecy which must wait fulfilment till the plan is put in action; but from all we have heard said by some of the lights of the profession we are convinced that not only would men of the first reputation be glad to conduct their cliniques at infirmaries, but the relief to the congested condition of the visiting system of voluntary hospitals would be enormous. There are constant complaints of the competition necessary before the post of visiting surgeon can be obtained, and the increase in the number of such posts would be a distinct gain to the profession.

As to the patients, we do not believe that they would be offended at being placed on a level with the patients at the hospitals. Patients know quite well that they never get so much skilful care as when the resident or visiting surgeon is attended by a group of students—*i.e.*, when their cure is connected with his own reputation. No objection need be apprehended from this quarter, nor from the profession itself. The opposition is likely to come chiefly from the Guardians, who are, as a rule, the least anxious of all people to see the institutions under their direction properly managed and skilfully nursed and doctored. Many a profitable job, many a traditional monopoly, many chances of iniquitous nominations, will be abolished when the keen eye of the visiting surgeon passes through the wards; but except to the Guardians themselves, this will hardly be an objection to a scheme that is full of promise, and which is really the chief thing needed to rouse the infirmaries to a sense of how work ought to be done.

The Æolus Waterspray and General Ventilating Company (Limited), whose business has passed into the hands of the late engineer of the Company, Mr. R. Oakley, 235, High Holborn, have recently applied their system with complete success to the Royal Academy, under the direction of Mr. Norman Shaw; the Beckenham Town-hall, under Mr. George Vigers; and the Banqueting Hall of the Mercers' Company, under Mr. G. Baines Williams. Mr. Oakley has just received instructions from the Ecclesiastical Commissioners to apply the same system to the church of St. Peter, Limehouse, under the direction of Mr. Ewan Christian.

A Valuable Invention.—It is gratifying to learn that Mr. R. Adams, of 17, Blackman-street, London, S.E., whose fanlight-openers and silent door-springs are being extensively used, has received large orders for his Patent Reversible Window. The sashes, although they slide up and down in the usual way, can be instantly turned inside out, enabling anyone to clean each side of the glass with ease, while standing in the room.—[Advt.]

Recreation and Health

"Health is the vital principle of bliss,
And Exercise of health."—*Thomson.*

ROWING AT THE UNIVERSITIES.

By H. R. Dumville, B.A.

(*Concluded.*)

After a time devoted to this drudgery, he is promoted to a place in a four-oared boat, and then into an eight. And now the period has arrived for the selection of the crews for the trial eights. These races always take place in the October term, when there are no inter-collegiate contests—for which, indeed, they are a species of preparation—and the crews are largely made up of Freshmen, with a few of the older and inferior men thrown in. Tom Leonard is assigned a seat in one of these boats, and after a time he goes into strict training for the race. If his boat wins, he gets a silver cup; if not, of course he receives nothing. Behold him, then, trudging down to the boat-house every day, wet or fine, snowing or raining, freezing or hailing, with only his thin jersey to protect him from the wintry elements when he has taken his place in the eight, and his chest exposed to the full force of the biting wind. After this, whether he win or lose—a cessation. Now comes the Lent Term, and with it the Lent races between the different college boats. Tom Leonard, being a fairly good oarsman, is selected for one of the lower boats of his college. Again the daily trudge down to the river side, through wind, and snow, and rain, the exhaustive row over the course, the still more exhaustive racing—even severer than before, and extending over four days instead of one. May be, after a time, he finds that he cannot go on with it, and he is obliged to relinquish the pursuit; but probably the injury to his constitution has been done by this time. Then follow the May races, of a higher class, and, therefore, more exacting in their demands on his strength and endurance than ever; and his aquatic academic year is completed.

The benefits and evils accruing from such a system will now be easily discernible. In the first instance, it is assuredly a good thing for these young fellows that they should be under some form of discipline in their exercise. Were they left to their own guidance, and had they no rules and regulations, each man going down to the river as he thought fit, undoubtedly they would not reap the advantages from rowing that they at present do. Not only would they be deprived of the benefit of coaching, but the club would soon fall into the hands of a clique, quarrels would ensue as to the boats, men would grow careless and cease to go down to the river at all, or only at rare intervals, and the whole concern would speedily relapse into utter confusion and decay. Moreover, under the present system more students are induced to become active members of the club—in other words, to take healthy exercise—for they know that their claims to notice will receive due recognition, and that no favouritism will be shown; and no mistake could be greater than to suppose, as many people do, that because a student is what is popularly termed "a rowing man," that therefore he is a lazy man. On the contrary, it will be found, as a rule, that he takes higher place at his examinations than most of his fellows; he works well and he plays well—the great secret, as it seems to us, of success in life. Of course, there are men who carry rowing to an excess, and devote their time and attention to little else, but these are in a decided minority. It is the *loafer*, the man who introduces the principle of doing nothing into every portion of his existence, who fritters away his life idly and aimlessly, that is the lazy man and fails to pass his examinations.

We now come to the evils. These, it appears to us, arise from the tendency there is to carry this system of rowing too far—to become a slave to the amusement, instead of making it subservient to intellectual culture and bodily health. The exercise is an extremely healthy one, bringing into play, as it does, a very varied set of muscles, not only of the arms and back, but chest and legs; and it is necessary, as we have indicated, to place it under some regulation. But is it not possible, in the case of many men to make these regulations too stringent? That it is beneficial for the majority we have practically admitted in stating that they pass their examinations so well (a sign, to a certain extent, of good health); but the minority, the men of weaker constitution, who break down, and are unable to continue the exercise—how about them? Do they not suffer in after life from this rigorous system of training, this going out in all weathers, this strain and excitement of racing?

But we can well imagine the reader at this point saying, "Yes, but is it not possible for a man at the Universities"—Cambridge we are now speaking of, but we believe it is much the same at Oxford—"to enjoy the pleasure of rowing quietly and comfortably, without going in for any of this tremendous hardship and fatigue?" Yes, we reply, certainly it is; but if he wants a boat he will have to go to a public boat-house for it. He will not be able to get it from his own boat-club, where they will all be engaged in the afternoon; and he must pay for it—so much an hour—which, after a time, becomes exceedingly expensive. The boat-club, in this case, is of no use to him. Unless he is an active member—and we have sufficiently indicated what we mean by this—the club might just as well be at the bottom of the sea for all the assistance he derives from it.

But, may be, the fault, after all, lies not so much with the system as the men. We are now coming to the gist of the matter; and with its enunciation we conclude. Every student, before going to the Universities, should make sure, from an examination by a medical man, that his heart and lungs are in a sound condition, and that he is physically strong enough to endure the exacting system of rowing carried on there. If he is sound, well and good; if not, he is worse than foolish to persevere in a course that may only ruin his future health, and quicken into active life in him the mischief already slowly begun.

The brain of Turgenieff, the Russian novelist, weighed 2,012 grammes; this is the heaviest brain on record. A gramme is nearly sixteen grains English.

Making Charcoal and Wood Ashes.—Lumps of wood (for charcoal), and refuse branches, sticks, &c. (for wood ashes), should be packed close in the form of a mound or cone, and thus set on fire, kept closely covered with good tough grass-clods about three inches thick. The heap should be watched day and night during combustion, adding an additional clod if requisite to prevent the escape of flame. When the charcoal is made, the heap should be opened and cooled with water.

Sanitary Inspections.—Fee for Survey and Report, in London, 2 Guineas. Estimate given and Improvement Works carried out when required.—The Sanitary Engineering Co., 115, Victoria-street, Westminster, S.W.—[Advt.]

Jottings from the Journals

"Th' ingredients of health and long life are
Great temperance, open air,
Easy labour, little care."—*Sir Philip Sidney.*

Turpentine in Infectious Diseases.—The *Medical Record* tells us that H. Vilandt writes in a foreign contemporary, concerning the value of the oil of turpentine in the treatment of diphtheria and the eruptive fevers. He states that he has never seen any of these diseases spread from a sick child to other members of the family when this remedy was employed. In many of his cases no isolation could be attempted, as the mother was the only female in the family, and was obliged to take care of both the sick and the well, continually passing back and forth from one to the other. His method was to pour from twenty to forty drops of a mixture of equal parts of turpentine and carbolic acid into a kettle of water, which was kept simmering over a slow fire, so that the air of the sick room was constantly impregnated with the odour of these two substances. He claims also that by this means a favourable influence is exerted upon the exudation in diphtheria, although it is by no means curative of the disease, and should never be relied upon to the exclusion of other remedies.

The "Tip-cat" Nuisance.—It is one of the unfortunate consequences of our long-continued neglect, as a community, to provide open spaces, that the children of the poorer classes have often no other place than the streets in which to play. No person with a keen sense of justice can complain if he find himself occasionally inconvenienced by a top, or a hoop, or a skipping-rope, or if he be compelled to step off the pavement to avoid disturbing some eager knot of boys whose game of marbles has reached the most exciting climax. But the case is altogether different with regard to "tip-cat," an evil and dangerous game played with a stick, and a "cat," generally a piece of firewood pointed at each end; the cat is "tipped" at one pointed end, rebounds, and is then violently struck by the player with his stick; the game, apparently, consists in sending the "cat" as far as possible, the direction being a matter of no consequence. Now, a number of persons lose their sight every year owing to this game, as the pointed "cat" is capable of inflicting severe injuries on the delicate structures of the eye, or even of rupturing its coats, when violently struck by some lusty schoolboy. An inquiry at any of the hospitals for diseases of the eye would confirm this assertion. The police ought to be instructed to suppress this dangerous nuisance, as they could easily do. There seems to be a sort of seasonal succession about these street-games; cricket, after flourishing through the autumn, gives way to hoops and marbles; the new year marks the beginning of the season for tops; while, a little later, "tip-cat" comes with the east wind to add a new horror to a London spring.—*British Medical Journal.*

Ventilated Broughams, &c.—It would be difficult to mention a seemingly small matter which has greater interest for a considerable class of the population than that of ventilation without draught for broughams and other close carriages. We of the medical profession have a very special right to speak on this subject. The majority of busy practitioners pass some five or six hours daily in a way peculiarly trying to the most robust constitution. Either the doctor must ride in an open carriage, which is a great incovenience, because he can only read with difficulty, and feels as if he were trying to look studious, besides being compelled to wear a top coat, which has to be taken off and put on some dozen times or more; or he must must needs sit in a draughty or close brougham, half-poisoned with his own breath, or cramped with the cold breeze from an open window, and alternate his hot-air bath with chilling exposures on doorsteps. No one who has not endured this sort of thing day after day can tell how trying it all is, or realise the need and full value of a remedy. Nor are medical practitioners the only sufferers, though we plead their prior claim to pity. Ladies attending evening entertainments and *réunions* are half-stifled in close carriages, and let down one window, "only a little, to breathe"—which is worse than pulling it down altogether, —with the result of a cold, a cough, or——. Nearly every family in society has, unhappily, some dismal story with which to fill out the broken sentence. A glance at the window-glasses, opaque with condensed vapour, will convince any one that we are not exaggerating. These things being so, it is with very great satisfaction we find that a well-known carriage-building firm—Messrs. E. Hill & Sons, of Baker-street, Portman-square—have devised what appears to be an effective mode of ventilation for the purpose. By means of air-channels in the roof—like horizontal flues between ceiling and tiles—and suitably placed counter-openings, the current of air formed by the forward movement of the brougham is utilised to clear its contained atmosphere without draught. It is needless to describe the plan in greater detail. We have gone into it carefully and believe it to be thoroughly efficient.—*Lancet.*

CRUSHED ICE AND LARD IN THE TREATMENT OF BURNS AND SCALDS.

By Dr. B. W. Richardson, F.R.S.

(From *The Æsclepiad.*)

I was called in consultation to see a youth who had been severely burned on the surface of the abdomen by the explosion of some fireworks which he was carrying in his trousers' pocket on Guy Fawkes' day. He was suffering excruciating pain, which was relieved by nothing but the application of cold water. As the water caused much damp, I suggested instead of it finely-crushed ice, in a thin cloth bag coated with olive oil. The plan answered excellently, no further pain was felt, and the open surface, extending over half the abdomen, healed most kindly.

At first I thought the practice was new, but I have since found, in Sir James Earle's admirable essays, that he anticipated me. Earle, indeed, had a better plan than mine. He mixed the crushed ice with fresh lard, and obtained results of the most satisfactory character, which I can confirm.

To put the method into practice, ice is well crushed or scraped, as dry as possible, into the finest division; then fresh lard is admixed until a broken paste is formed. The mass is put into a thin cambric bag, laid upon the burn or scald, and replaced as required. So long as the ice and lard are melting there is no pain from the burn, and so long the application is serving its purpose. The return of pain is the call for the repetition of the remedy.

I do not think any one who has seen this beneficent and efficient mode of treating burns and scalds carried out a few times will forget its value. It is as scientific as it is simple. It saves at once the fever incident to pain, and it leaves very little contraction of surface; two points which, of themselves are greatly in its favour.

Our Bookshelf

"Reading maketh a full man."—*Bacon.*

A VEGETARIAN DIET.

Essays on Diet. By Francis William Newman, Emeritus Professor of Latin in University College, London. (London: Kegan Paul, Trench, & Co.) 1883.

These essays suffer from one great defect—that they are essays. Originally, the majority of them were delivered to the public in the form of lectures or addresses. As such, they would be infinitely more effective than in their present shape; while the remainder, with one exception, which treats rather of the land tenure question in its relation to food-supply, than of vegetarianism pure and simple, might advantageously be relegated to a similar position. It is, indeed, a very different thing listening to a lecture to reading it oneself. In the one case, we are unconsciously influenced by the lecturer's style, his voice, manner, and many other considerations which have in reality nothing to do with the actual value of what he is saying, and which should in no way influence our judgment, but, as a matter of fact, do influence us—whereas, in the other case, we have time to ponder over what we are reading; we can pursue our way slowly and deliberately, and are in a position to detect the flaws and inconsistencies of the writer. Thus, it very often happens, that a man may be highly struck with the force of an argument which he has heard from a platform, and yet, on reading the same words at home, with the calm reflection that such an opportunity affords him, may at once see through the inadequacy of the reasoning.

From what we have said, it will be gathered that we are not particularly impressed with the weight of Professor Newman's arguments in favour of vegetarianism, much as we may admire the pleasant, highly cultivated manner in which they are set forth. Had they simply been brought forward in support of a greater attention being paid to vegetables in our diet, to the discouragement of butcher's meat, we should have considered them conclusive enough; but, when his opinions are urged as a reason why we should give up *all* flesh meat, we must confess that we are unable to see the force of the reasoning. And, in truth, for the matter of that, Professor Newman is no vegetarian himself in the strict acceptation of the word, for he takes milk, eggs, butter, and cheese; and the way in which he excuses himself from this is a fair example of the ingenuity of his pleading. He acknowledges himself to be wrong, and, in order to put himself right, he invents a new definition for vegetarian diet—it is food which is substantially the growth of the earth without animal slaughter.

He also tells us that since he became a convert to the vegetarian way of thinking, he has made a point of taking no more eggs or milk and its products than what he did before. This is a very ingenious method of reasoning; and, to show how ingenious it is made, it will be necessary to point out that one of Professor Newman's chief arguments in favour of a vegetable diet is based on the assumption that if so much land were not given up to the pasturage of cattle, in consequence of the great demand for flesh meat, it would be devoted to the production of grain or pulse; and, while yielding a much larger supply of food, would at the same time afford more employment than it now does. But Professor Newman is quick to perceive that if he were to admit that vegetarians take an *increased* amount of milk and butter in consequence of their abstinence from flesh-meat, he would weaken this argument, for then the land would be required for milch cows, and he enunciates the theory which we have mentioned. To us this argument appears exceedingly weak, for if a man have an inclination to take milk, butter, and cheese, and he be restrained by no other influence than the *supposed* amount he took before he became a vegetarian, we may assume that amount will gradually grow day by day, in accordance with his desires, until at length it will have no more relation to the amount he actually did take than a cannon ball may be said to have to a pin's head.

Professor Newman's arguments are not very many, but they are frequently repeated throughout his small book. Certainly for this an apology is made in the preface, but we cannot but think it indicates very clearly the weakness of his position when it is necessary to harp so perpetually on the same theme. Thus, for instance, we find that he formulates the land-tenure argument, to which we have allusions in almost every article; while over the fact that Dr. A. P. Buchan recommends a farinaceous diet with fruit, as the best method of treating, and sometimes curing, pulmonary consumption, he is especially jubilant. To this we can only reply that we should be glad to hear of a case of consumption that had been cured *solely* by a vegetable diet, and until we do we must elect to remain doubtful on the point. That farinaceous food should be prescribed to the consumptive patient is in no way extraordinary, but it certainly does not prove that because it is a right and proper diet for him to take, it is therefore a good thing for everybody.

Professor Newman is too much given to rushing to conclusions. This is no doubt a common failing with men of a generous nature whose sympathies, as his do, lie all on the one side of a subject; but the process is by no means one which aids the convincing powers of his work. Another argument that he makes constant use of is, that under the present demand, all cattle intended for the flesh market *must* be diseased. Naturally, the reader enquires, Why? Professor Newman replies to the question in his own way. He tells us that the cattle are brought from a long distance, that they are packed in uncleanly railway cars or steamers, that they have no water given to them, and that on arriving at their destination they are subjected to much terrifying and beating in order to make them go in the direction required, *therefore* they are diseased. It is almost needless to point out the error in this reasoning. There is no actual necessity, however much probability there may be, why the cattle should be treated in this manner, why they should be overcrowded in the railway cars, or placed in dirty, evil-smelling compartments. Moreover, Professor Newman may call it disease if he likes; we, on the contrary, should rather term it "want of condition." If dirt went for anything, what diseased animals ducks and pigs would be! After this, we are not suprised to find our author urging that a large amount of unsound meat must necessarily be consumed by the poorer classes in London, because Dr. Letheby says that with a staff of but two inspectors it is hardly possible to make an efficient supervision of all the meat that comes into the market. It apparently never occurs to the author that the staff of inspectors might possibly be increased.

Throughout these essays it is manifest that Professor Newman has been actuated, in his advocacy of vegetarianism, as much by his intense sympathy with the wants

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f his fellow beings and horror of cruelty to animals, as by he conviction that a vegetable diet, from a health point f view, is the best. He evinces this in the way he speaks f the poorer classes—how if richer people would but ive up eating flesh meat, the working man, by example, vould discontinue it too, and so, by living much cheaper, vould be able to improve himself in other ways; while he ecomes quite pathetic over the assumed cruelties practised y butchers on their innocent victims. Equally touching re Mr. Newman's words respecting the beauties of the Galipagos Islands, visited by Charles Darwin, where the irds were so tame that they actually settled on the edges f the buckets and drank the water which the sailors were arrying. "Who of us," he says, "would not regard such n island as a little Paradise? Who would not willingly ive up the eating of birds if he could thereby purchase the niversal confidence of the feathered race, and live in the nids of them as their friend?" And so on; we prefer the Professor, however, when he is in a more practical mood. In regard to his argument concerning the food of the working-man, we may remark that if everyone gave up flesh-meat and took to vegetables, vegetables in consequence of he demand would probably become as expensive as flesh-meat now is, and so the unfortunate working-man would, n all probability, gain nothing pecuniarily by the change.

In conclusion, we may indicate briefly what our own views on the subject of a vegetarian diet are. We have always held that upon such a matter no one can lay down any hard-and-fast rules. So long as human beings are constituted on different principles and in various grades of strength, it will be impossible to say what form of food is best suited for the community. Each individual must judge for himself. We have known a vegetarian diet do good certainly, and for some people it would seem to be highly beneficial; but on this account we are far from saying that it is the best form of diet for every one. Had Professor Newman contented himself with a less sweeping assertion, we could have agreed him; as it is, we cannot but think it will be a long time before the world will see the efficacy of living in the way he so earnestly desires.

LITERARY JOTTINGS.

The Book of Health; Household Guide; Popular Gardening.—These three works are now being issued by Messrs. Cassell & Co., in serial form. Of the first, we have already given our opinion in full in HEALTH. It is an eminently distinctive and valuable work, and the opportunity of acquiring it in a cheap fashion, in parts, should not be lost by the people. The "Household Guide" is an excellent companion to the housekeeper, and deals with every topic likely to require the consideration of a matron; while the last-named work appeals forcibly to every admirer of flowers, and to every gardener, professional or amateur. The frontispiece to Part I.—a group of roses—is really an exquisite piece of chromo-lithography.

Sanitary Drainage of Tenement Houses, by W. P. Gerhard, C.E., New York City, is an able *résumé* of the principles which should regulate the construction of the drainage of houses. The paper is a reprint from the proceedings of the Connecticut State Board of Health.

The Æsclepiad, by Dr. B. W. Richardson, F.R.S., is a quarterly magazine, entirely written by the author, and containing descriptions of medical cases and accounts of original research. Needless to say, Dr. Richardson writes ably and clearly. The labour of preparing this quarterly review must be very great; and the excellence of the work forms the best *raison d'être* of its publication. Dr. Richardson's account of Mr. Weston's "vital measurements" is worth perusal. A very readable paper on "John Keats" is also included in this number of "The Æsclepiad."

Science and Singing (Chappell & Co., London) is a reprint of a lecture delivered by Mr. Lennox Browne, F.R.C.S.E., in which the principles of physiological vocalisation are popularly expounded and clearly illustrated. Dr. Browne criticises severely the "Ammoniaphone" of Dr. Carter Moffat, and we are of opinion makes out a good case against the probability of the voice being at all improved in any permanent sense by the invention just named. The lecture will prove interesting and instructive to all vocalists.

School Hygiene (Longmans, Green, & Co.) is a lecture delivered by Dr. C. H. Ralfe. This discourse has already been noticed in our columns. We can only repeat that this *brochure* is full of information and sound advice, which might well be followed by all who have the care of youth.

National Health Society (Eleventh Annual Report, 1884), 44, Berners-street, London, W.—The good work accomplished by this society needs no mention or commendation in these pages. It has ever been a pioneer in sanitary advance. Its advice is freely given to all, and its labours in diffusing health-knowledge merit the recognition of all who have the welfare of the community at heart. Those who are ignorant of the extent of the society's doings, cannot do better than peruse the report which has just been issued.

The Annual Report on the Health of Hastings for 1883, by C. K. Shaw, Medical Officer of Health, shows that this favourite sea-side resort is carefully supervised in all its sanitary arrangements. The town was wonderfully free from diseases of infectious type during 1883, and much good sanitary work has been accomplished under Dr. Shaw's watchful care.

Vivisection, in its Scientific, Religious, and Moral Aspects, by E. D. Girdlestone, B.A. (London: Simpkin, Marshall, & Co.), is an ably-reasoned defence of the practice. It will not convince irrational agitators against the practice, but it will supply unbiassed minds with many logical aids to a better understanding of the utility and necessity of experimentation on living animals as an aid to the discovery of means for the relief of pain and the cure of disease.

Vaccination, by G. S. Gibbs, is a reprint from the *Journal of Science*. Mr. Gibbs concludes that vaccination is not scientific, that it cannot be accurately defined, that it is useless, and so on. His arguments have been debated over and over again, and he apparently remains unconvinced by any testimony which has been brought forward on the other side. The pamphlet is issued by the "Society for the Abolition of Compulsory Vaccination."

Willesden Local Board.—Sanitary Report for 1883, by Harrison Branthwaite, Medical Officer of Health. This report is of a satisfactory kind, and shows that Willesden is, on the whole, a healthy suburb of the metropolis. Dr. Branthwaite is of opinion that the vexed question concerning the notification of infectious disease is secondary in importance to the great consideration that such information is absolutely necessary in enabling such diseases to be speedily dealt with and isolated by the medical authorities.

SAMPLES OF DRINKING WATER sent by parcels post to L. REED, F.C.S., A.I.C. Hyrst hof., South Park Hill-road, Croydon, carefully analysed. Results, with description, forwarded in a few days. Fee, £1. 1s.

IMPORTANCE OF DRAINAGE TO FLOWERS AND PLANTS.—Defective drainage deprives the roots of proper nourishment, subjects them to a chilling temperature, and forces them to absorb a vitiated fluid.

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We have subjected these preparations to a careful examination, and are enabled to testify to their purity and genuine character. The "Condensed Cream Emulsion" is prepared from the best Bavarian milk, and has been combined with pure barley malt-extract to form an emulsion, which, besides being highly palatable, and therefore readily taken by children when cod-liver oil is refused, is also found to contain all the materials for replenishing the tissues after wasting disease or general debility. Those who cannot take cod-liver oil should certainly give Loeflund's "Cream emulsion" a trial. An additional advantage of this preparation is its ready solution in coffee, tea, chocolate, and other beverages. In this form, we have found it to be very palatable. No cane-sugar is found in this "emulsion," which contains at least twenty-five per cent. of pure fat, with fifty per cent. of the carbo-hydrates, casein, and other nutritive elements.

The "Pure Hordeum Diastase Malt Extract" is a second preparation made by Messrs. Loeflund, and which has already made its mark as a means of treatment in chest affections. Neither cane nor grape sugar is contained in the "Extract," the combination with Diastase forming a highly natural and at the same time medically important feature of this preparation. The special merit of pure malt extract is the digestive power they exercise on starch, converting that substance into maltine or dextrine. It is unfortunate that many of the "malt extracts" sold want this characteristic power, which, however, we have found "Loeflund's Pure Hordeum Extract" to possess in a high degree. We are, therefore, glad to be able to substantiate the favourable opinions expressed of this preparation by the leading medical journals. Physicians and others in want of a pure, serviceable malt extract, calculated to benefit patients suffering from throat and chest complaints and from strenuous affections, should give Messrs. Loeflund's preparations a trial.

Messrs. Loeflund also combine their "Malt Extract" with Pepsine, Lime, Iron and Quinine, and Hop; these combinations being adapted for all the wants of the physician in his treatment of various ailments. These and the other preparations of this firm may be had from all chemists, or from the manufacturers, 148½, Fenchurch-street, London, E.C.

Our Letter : Box

"Conference [maketh] a ready man."—*Bacon.*

NOTICES TO CORRESPONDENTS.

All Communications for the Editorial Department (including specimens of Sanitary Appliances, &c.), to be addressed to "The Editor of Health," 74-76, *Great Queen-street, London, W.C. Those intended for the Publishing Office to be sent to* "The Publisher," *at the same address.*

Contributors are requested to send stamps for the return of the MSS. *in event of non-acceptance. Every care will be taken to ensure the safety of* MSS., *but the* Editor *and* Publishers *cannot hold themselves responsible for accidental loss.*

Correspondents are requested to write on one side of the paper only. The Editor *disclaims responsibility for the opinions expressed by Correspondents.*

LETTERS TO THE EDITOR.

MILK FROM COWS SUFFERING FROM FOOT-AND-MOUTH DISEASE.

Sir,—In reading the interesting remarks, in a late issue of Health, of the epidemic caused at Dover by the use of milk from cows suffering from the above complaint, it occurs to me that less blame is possibly due to the owners of the cows for selling such milk than appears at first sight. That it by no means follows that any evil will result from using such milk, I can assert from personal experience, and I have no doubt many other people could bear out the truth of this statement. It so happens that about twelve years ago there was a bad outbreak of this disease in the county where I was then living. We had two cows, one of which had a calf about a fortnight old when she took the foot-and-mouth disease, and the other had her calf just as she sickened. At that time I had no idea of there being any risk about using the milk, and as all the cows at the farmers in the neighbourhood were also ill, we simply used the milk as usual, after the unpleasant smell which the milk had the first day or two passed off, only trying as a precautionary measure whether it would boil. Just at first it curdled and "cracked" instead of boiling, but this certainly only lasted two days. One calf died within forty-eight hours of its mother being taken ill, and the newly-born one only lived one day. But all in our household, including four children under nine years of age, remained perfectly well. Both cows had the disease severely; one never completely recovering. Five years later our cows had it again, and we used the milk as before; only for the first week we boiled all the milk before we used it, as by that time I heard that cases had been known of illness to people resulting from the use of such milk. I may observe that during the first outbreak that came before me all the farmers' families round us used the milk just as we did, and I am nearly certain no injury was caused to any one.*—I am, Sir, yours faithfully, A Doubter.

THE BATTLE OF THE FILTERS.

Sir,—With Mr. Maignen contradictions are very rife. "Out of his own mouth will I judge him." In No. 52 of Health, he asserts "the vitality of bacteria is not destroyed by any chemical agent," whilst in No. 56, he replies "unhesitatingly *yes*," to the question whether bacteria or their germs are destroyed in his filters. Furthermore, Mr. Maignen "professes," "guarantees," and "positively asserts" (No. 56) statements which are opposed to all our scientific notions. Surely this is not paramount to the "proof" which he promised in No. 52 of Health!—Your obedient servant, W. Domett Stone, M.D.

19, Oxford-terrace, Hyde-park, W.
May 3.

ÆOLUS WATERSPRAY AND GENERAL VENTILATING COMPANY.

Sir,—In reply to numerous inquiries will you kindly permit me to state through the medium of your columns that we are not exhibiting at the International Health Exhibition? We made application for space in the usual form, but having no less than seven patented inventions to exhibit, and amongst them an entirely new invention for the purpose of drawing off the vitiated air from infectious disease hospitals and destroying the disease germs so as to render innocuous the presence of infectious disease hospitals in crowded neighbourhoods, we were compelled to ask for a considerable space. The allotment offered to us—13 ft. by 4½ ft.—was totally inadequate for our purpose, and we were obliged to decline it. It has been alleged that the space at the disposal of the Executive Committee was insufficient to meet the demands of the exhibitors, but we think that when it comes to be seen how much space has been lavished on exhibits of secondary importance (such as jams and pickles), this plea will scarcely suffice as an excuse for crowding out subjects of first importance in connection with the objects of the exhibition, and we happen to know of at least one exhibitor whose exhibits are certainly not of paramount importance and yet who has been allotted twice as much space as he applied for. Our sole connection with the International Health Exhibition, therefore, is that we have undertaken the ventilation of the Vegetarian Restaurant at the request of the Vegetarian Society, and we have no doubt that the purity of the atmosphere in that room will be favourably contrasted with the other dining establishments in the Exhibition.—I am, sir, your obedient servant,

235, High Holborn, W.C. R. Oakley, Sole Licensee.

SMALL-POX AND VACCINATION.

Sir,—It is, I think, wholly unnecessary to encroach on your space by adducing further statistical evidence of the inestimable benefit conferred on mankind by vaccination. A glance at the figures contained in my paper on "Small-pox and Vaccination," published in No. 55 of Health, must convince all unprejudiced persons that the case has been proved by the "irresistible logic of facts."

I would refer those of your readers who wish for further information on the subject to an article in the *Birmingham Daily Post* of March 12, reprinted in *Land and Water* of March 22, containing facts which the writer states "seem to show conclusively that so

* What our correspondent details is, doubtless, correct, but, where foot-and-mouth disease exists, there must always be a certain risk involved in the use of milk from cows so affected.—[Ed. H.]

far as the Birmingham district is concerned, the value of vaccination has received a new and striking illustration during the present epidemic." Attention may also be drawn to the recently published report of the medical officer of the Local Government Board, on the influence of vaccination on the mortality of children from small-pox in the London epidemic of 1881, on what I commented in *Land and Water* of Feb. 23. One paragraph, which speaks volumes, I will here give :—"In 1831, among the 55,000 children who had not been vaccinated, there were 782 deaths from small-pox; among the 861,000 who had been vaccinated, there were 125 deaths from small-pox."

Of course, as Sterne wrote, "there is nothing so bad which will not admit of something being said in its defence," it would, therefore, indeed be surprising if the anti-vaccinationists could not find by diligent and unremitting research one or two facts in support of their allegations.—I am, &c., W. Domett Stone.

QUERIES AND ANSWERS.

GENERAL.

Conscia.—See No. 52, Health.

Peter G.—Impossible to say. Consult Index to Vol. II.

Bella.—Examinations held in May of each year.

C. A.—Probably the first-named. There is no patent in the matter, as far as we have heard.

Ajax.—Yes; Cassell's "Book of Health" would suit you very well. It is being published in parts.

Robert Glass.—Consult the patentee. He would, doubtless, be glad of your suggestion.

Musicus.—"Science and Singing," by Mr. Lennox Browne, price 1s., is published by Messrs. Chappell & Co., London.

Plymouth.—1. No; Dr. Wilson's lectures are not published. 2. May be repeated at Exeter in September. 1884. 3. Read Huxley's "Physiology," or Power's "Physiology," published by Cassell & Co.

F. Batstone.—Parkes' "Hygiene" is published by Messrs. Churchill & Co., New Burlington-street, W.

Eater.—If you send us the MS., accompanied by stamps for return in case of non-acceptance, we shall read it, and decide.

SANITARY.

B. G.—See "note" in Health No. 57, with reference to cows fed on graveyard grasses.

Antonio.—There is a law in your city enforcing notification of infectious diseases. Opinions are much divided respecting this system. Some authorities wish the duty of notification to be laid on the shoulders of the medical attendant; others (*e.g.*, Dr. A. Carpenter, of Croydon) think the responsibility should rest on the householder.

Cargill.—About 20 per cent.—not more.

Tom.—1. Carburetted hydrogen is the gas you mean—not sulphuretted hydrogen. 2. Due to defective pressure. 3. Dangerous certainly.

A. W.—Certainly; the process is perfectly safe.

Builder.—Try Bostel's or Jenning's.

Hamilton.—1. If your plumber means that lead pipes (and especially new ones) are to be preferred to iron ones, for water-supply, he must be a very ignorant man. See our "Notes by the Way" (Nos. 55 and 57) on case of lead-poisoning at Huddersfield by lead pipes. Whether or not the lead will act injuriously, will depend largely on the quality of the water. If the water is sufficiently hard, it will leave a lime deposit inside the pipes which will protect the pipes from any action. 2. Simply see that plenty of fresh air circulates through your house, and have ordinary coal fires in the rooms.

MEDICAL.

H. H. H.—Why not begin to find out the system of diet which will best suit you? It appears to us that in due regulation of diet lies your best hope of a cure, without drugs at all. Give up tea and coffee, for instance (you do not mention your diet in your letter); try the effect of fruits, eaten with your meals—apples, oranges, &c., and, of course, see to your digestion. It is more than probable your liver is largely at the root of your troubles; and we should think small doses of Æsculap or Friedrichshall Water in the mornings, occasionally, might do you good. Drinking "hot water" (see Health, No. 50) might be also tried as an experiment. We can send you address of a London physician on receipt of stamped addressed envelope.

Cambuslang.—You are evidentiy highly nervous; and your troubles arise simply from your nervous state acting upon (if not produced by) your digestive troubles. Let your food be light and nourishing. After or before meals take some of Murdoch's Digestive Powder (to be had at 357, Paisley-road, Glasgow) as a corrective to acidity. Eat fruits (apples, &c.) with your food, and take ten drops *Fer Bravais* thrice daily in water. You only want bracing up. Go away for a change—to the sea, if possible. As regards your other inquiry, the frequency you name would not be injurious at all.

M. A. C.—Don't trifle with quack remedies. Those you name are productions of this nature. There is no need for you to be troubled in your mind. See and follow advice to "S. O. D." in No. 55 Health. You will get quite well by attention to details there given.

Sam.—We cannot reply to inquiries by post, except under special circumstances. You asked for our advice, which was duly given you. It is in your own power to follow it or not as you choose. You evidently exaggerate your trouble, or are unwilling to try the remedies prescribed for your case.

J. F. Donnelly.—If your drains are in proper order you need have no fear. You might use Sanitas Powder in all closets and sinks for a time. This will be quite sufficient. There is no infection possible, unless from typhoid matter from the patient gaining access to drinking water or milk, which, as in the case you name, does not seem in the least likely.

Nemo.—See advice to "Lucy Lindsay," in Health, No. 57. You must look to your diet, and also to the quality of your drinking water. See that this is not too hard. Give up the dandelion. The pills above ordered will relieve your symptoms. If not bettered, write again. Avoid vegetable food for a time.

C. A. F.—No; bleaching the hair would only affect that which has grown. The new growth after shaving would be of the original and natural colour. Dyeing or bleaching does not affect the roots of the hair.

Arica.—[Post-cards are not attended to. Please note this fact in future.] The clinical thermometer can be obtained either from Mr. Dollond, 1, Ludgate-hill, London, E.C., or from Mr. Casella, Holborn-bars, London, E.C. Prices from 7s. 6d. upwards. See article on the thermometer in a former number of Health, Vol. I.

H. Grason.—Have your ears syringed. It is possible you may be suffering from an accumulation of wax.

Claudian.—1. Depends on the exact nature of the case. If you have been medically ordered the aperient, by all means adhere to the advice. 2. To prevent skin-irritation chiefly from the truss. 3. Very often once weekly; but depends on state of health, mentally and physically.

Senex.—Wear a suspensory bandage, and rest as much as possible. Hot fomentations will relieve pain and tension. If increase, however, has been so long continued, we should certainly advise you to see a surgeon, who may relieve you in a simple fashion.

Hofmann.—We should say look well to your diet as a first measure. See and follow general advice given to "J. A. K.," in Health, No. 56, as regards food, pepsine, &c. Your digestive troubles, we should say, are the cause of your ailments. If not better after a time write again.

A. B. C.—It is clear from your letter that your original complaint has left you. What we should now advise is a thorough change of air. Go to a bracing seaside place on the east coast (not Clyde); North Berwick or Dunbar would suit you. It is evident you need change. Look to your general surroundings; and see, firstly, that your house is healthy, and that you are, secondly, not overworked. A sea voyage would probably thoroughly restore you.

Sylvan.—We should advise you to write to Mr. Browning, 63, Strand, London, W.C., and obtain from him his system of sight-testing. You must wear suitable glasses, otherwise you will strain your sight.

James Stevenson.—Try, if possible, what a change for a week or two to the Clyde would do for your child. See that no worms affect him. You might also try the effect of giving a little cod-liver oil emulsion after food, and plenty of milk and cream, for a time. We should think the change of air would effect a cure.

Spero.—We should advise you to try what a vegetable diet would do for you—we mean eating plenty of fruits and vegetables, but not excluding meat. You should also try the effect of strong soups, &c., in place of solid meats, for a time; and in this way give your digestive system a good chance of recovering its tone. Clothe warmly, and avoid chill. A little Æsculap water taken occasionally in the mornings would also benefit you.

Sorrowful.—See advice to "S. O. D.," in No. 55 Health. Don't in any way grow morbid. You will get quite well. Take more open-air exercise.

Mary W.—We think, in your case, the advice given above to "Spero" might be tried. If that advice does not cure you, we should then have electricity cautiously applied to the head as

recommended by Dr. Althaus in his book (reviewed in HEALTH Nos. 22 and 23). Glad to be of any further service to you.

A LANCASHIRE LAD.—Yes, the quinine will promote your appetite. Your symptoms arise from indigestion, which you may cure by attention to what has been told you.

A SUFFERER.—Try the effect of placing a drop or two of glycerine in the ear at night, and plug the ear thereafter with cotton-wool. Take ten drops *Fer Bravais* thrice daily in water between meals. Guard against chills. Let us hear how you are in a short time. If you have suffered from ear-ache or cold in the head, it is probable the drum of the ear may be a little affected.

S. BETA.—We shall be glad to assist you if you will point out the reference in HEALTH. Possibly, by referring to the Index to Vol. II. you will find the paragraph. The only reference we can recollect is one in which "children's dress" was described

PENDRAGON.—Wash with Pears' Soap and tepid soft water; brisk friction with hard towel thereafter, first pressing out the matter from the skin-tubes which causes the acne pimples. Try also a powder consisting of sulphide of lime, twenty-four grains; sugar of milk, half an ounce. Of this take as much as will cover a sixpence every four hours. Mix well, and keep in a stoppered bottle.

E. C. WAYLING.—Try inhaling the vapour arising from a pint of hot water, to which ten drops tincture of iodine have been added. Practise this twice daily when troubled. A little cod-liver oil taken after food would also benefit you and strengthen your lungs. Loeflund's Cream Emulsion would suit you admirably if cod-oil is unpleasant.

A READER.—What evidence is offered you that camphorated chalk is injurious to the teeth? We have used it for years as a dentrifice with great satisfaction and benefit. People who make such statements about the injury it is supposed to do to the teeth should be asked for exact proof of their statement. Because certain persons' teeth break is that result to be ascribed to the chalk? This is an example of the *post hoc, ergo propter hoc* reasoning in which illogical persons indulge.

T. SEFTON.—We prefer *Fer Bravais*. Tea and other vegetable infusions are incompatible with iron. Fat and iron assimilate well. Cod-liver oil and iron are frequently prescribed together.

ADVANCE.—1. As a strengthening measure, and always provided you have sufficient reaction, the cold affusion will do you no harm. 2. Dunoon, certainly, for preference. Try Lœflund's Pure Malt Extract.

XENES.—Can you not account in any way for the origin of the ailment? We should advise you to see a surgeon, especially as you speak of a "growth." It is probably nothing of consequence, and a surgeon will be able to put matters right very readily.

DIABETES.—Rest after food; take Pepsine after your meals to aid digestion; avoid vegetables for a time, and take ten drops *Fer Bravais* thrice daily in water between meals. If not better, write again.

J. V.—Try bathing the part with hot salt water, and thereafter rub in warm oil along the course of the numbness. At your age, don't attempt any "extra" exercise.

HYPO.—See advice to "Diabetes," above, as regards rest, diet, and Pepsine. The *Fer Bravais* might also do you good. Leave off all stimulants for a time, and drink freely of potash water. Your symptoms are those of indigestion. Avoid constipation; in your case vegetables and fruits might do good. The apparatus about which you inquire are not, in our opinion, calculated to produce any electrical currents whatever.

BLACK BEETLE.—Not of much consequence; only indicating that you are probably a little overworked and below par. Take the tonic recommended to "Lex" in HEALTH, No. 57, for a short time, and let us hear how you are thereafter. Drink freely of potash water.

F. KIRK.—A change to the seaside or country would, in our opinion, be advisable in such a case. There seems no actual illness, and the weakness may well be due to confinement. Try what a change to a not over-bracing air (Hastings or Eastbourne, for example) will do. A little *Fer Bravais* (ten drops thrice daily in water) should also be tried.

PLYMOUTH.—Take for a short time a teaspoonful of Fellow's Syrup of the Hypophosphites thrice daily, an hour before meals or so, in a wineglass of water, and let us hear the result. Of course, you will guard against chills, and look well to the general health.

C. PARLEY.—Avoid all stimulants; use injections night and morning, for a day or two only, of Condy's Fluid and tepid water (one part Condy to twenty or thirty water). Beer will aggravate your complaint, which we should say may be "infectious" in the sense you indicate in your last query. Rest is necessary; the tonic we prefer is that recommended to "Plymouth," in present number of HEALTH. In cases like yours, we have often seen a week or two by the seaside, or a thorough change of air, with rest, accomplish a cure. Avoid constipation. If not bettered, write again.

PROCRASTINATION.—Yours is a case in which you are evidently exaggerating your symptoms. See and follow advice fully given to "S. O. D." in HEALTH, No. 55. You only want plenty of fresh air, exercise, cold sponging, and avoidance of stimulants to effect a cure. But you should know also, that what you complain of is a perfectly healthy sign in every way. We opine you may have been answered before this appears under the cognomen you formerly assumed. Beware of quacks.

J. BOLTON.—We do not approve of either the mixture or the mode in which it is offered. Read our review of Ebstein's book on "Fatness," in HEALTH, No. 57.

LANARKSHIRE LAD.—If the disease is on the head, use the following as an outward application to the parts:—Pure carbolic acid, two drachms; glycerine, one ounce. Label, "Poison; outward use only." Take cod-liver oil and iron internally—three drachms syrup of the iodide of iron to be added along with mucilage of gum-arabic (one ounce), to six ounces cod-liver oil. A tablespoonful of this mixture to be taken thrice daily.

H. C. CARD.—1. See advice given to "Sandmere," below, regarding rest after food. Try fruits as part of your food by way of avoiding constipation. 2. We do not think a nightly warm bath would be good for you. Why not simply try tepid instead of cold water in the mornings? Judicious exercise (*e.g.*, dumb-bells, walking, &c.) might do you good.

GLAUCUS.—No; tricycle riding (in moderation) will do no harm. Sleep on a hard mattress, in a well-ventilated room; use cold sponging each morning; avoid fluids late at night; and avoid stimulants. You suffer from no disease. Take plenty of open air walking exercise; food to be light and nutritious. What you name is of no consequence.

SANDMERE.—Avoid tea and coffee, and try milk instead; food to be very light; soups, Brand's Essence of Beef, &c., for a time; take a bismuth tablet for the heartburn; and, above all, avoid constipation; but we need hardly add, be very careful as regards aperients. A little strong soup and bread for an evening meal would suffice. As regards the bath, better be careful; once a day may be too often later on. The medical man you inquire about is a duly-qualified practitioner.

PROUD PRESTON.—The appliances you inquire about, are, in our opinion, worthless, and savour of quackery of a very plain description. We do not think the "lung" suitable for your case; but you might inquire of the patentee and inventor.

W. FUND.—Try the effect of applying a little warmed Vaseline at night. You must avoid chills and cold, and especially any sudden change from a warm to a cold atmosphere.

DON.—You must see to the regulation of the diet; avoiding vegetables, and attending to rest especially. When the symptoms are very severe, one lead and opium pill should be given. This is all we can say, till we know more of the history of the case.

UNE JUMELLE.—No fear of such consequences merely because the survivor was one of twins. All depends on the parental constitution. If of good stock, twins are usually quite as healthy in every way as the children of single births.

CULIN.—1. Not necessarily unhealthy, if ventilation of room is good; but better that old and young should occupy separate beds and rooms. 2. We believe the preparation is genuine, but in no wise superior to other "foods" of like kind. 3. We know the stoves, which are very well adapted for the purposes you name—always provided free ventilation is attended to.

CATARINA.—We think you should use a lotion composed of bicarbonate of soda one drachm, and glycerine an ounce and a half, If not better in a week or two, write again. Avoid chills, and use Pears's Soap and tepid water night and morning. Ten drops *Fer Bravais* in water thrice a day, for a week or two, should also be taken.

FRANK.—At your age we should advise you simply to let your diet consist largely of milk and eggs, light soups, fish, &c. Take Æsculap Water occasionally in the morning, and see that you also have sufficient out-door easy exercise in walking. The Æsculap water should remove the pain you experience.

SEMAJ.—Try:—Tincture of cantharides, one ounce; distilled vinegar, an ounce and a half; glycerine, a drachm and a half; spirits of rosemary, an ounce and a half; elder-flower water, three ounces; rose-water to make up eight ounces. Make a lotion. Label "for outward use only," and rub in the lotion to the hair roots twice a day. You should see to your general health. Cod-liver oil and iron, as recommended to "Lanarkshire Lad," in present number of HEALTH, would be likely to aid you in every way.

FIFTY.—With such a case as yours, it is impossible not to sympathise. 1. Simply exercise mental power; take exercise; fifteen grains bromide of potass occasionally at bedtime, in water, and sleep on a hard mattress. 2. We think the step you mention would be very desirable; and, provided you were well suited, would tend greatly to your happiness. 3. About thirty or thirty-five

[*Continued on page* 96.

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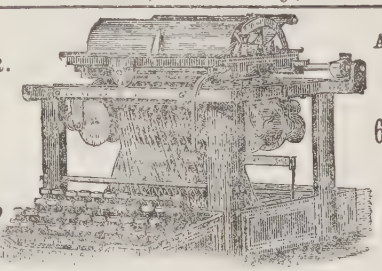

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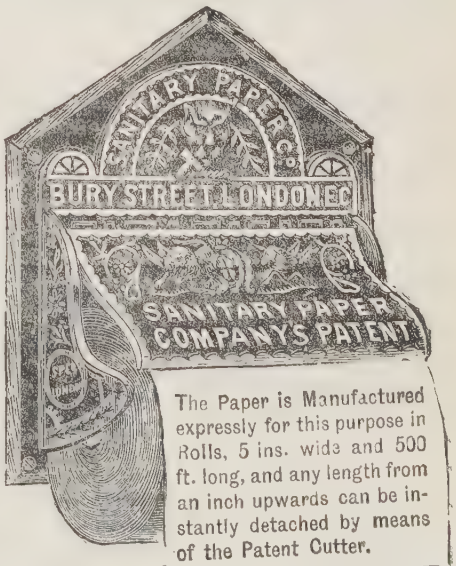

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years, say. 4. Yes; from your own account you are in good health, and only require a little care and cheerful society to restore you to your former self. Glad to be of any further service.

A. B.—Why consult a quack? If you wish to lose money (and health) by all means do so. Do not be in the least alarmed. You have been unnecessarily excited. See and follow advice to "Glaucus," in present number of HEALTH. You are in no sense ill; and simply look to your general health, and be cheerful and confident in every way. What you name is perfectly normal in many persons. Avoid Glasgow quack museums in future.

R. R.—Thanks for suggestion. We are afraid it is not adapted for our journal. Try for the throat trouble a gargle composed of one part sulphurous (not sulphuric) acid to ten or fifteen of water. We suspect, however, it is due solely to nervous action. A tonic, such as *Fer Bravais* (ten drops in water thrice daily), would also be advisable. Glad to be of any further service.

A. W. G.—Fruits and vegetables at large—at least, make the experiment. Try fruits especially. You might also try Morson's Pepsine after food. Light puddings and milk—rice, sago, tapioca, &c.—are also suited for you.

B. A.—Try the effect of the tonic recommended to "Plymouth," in present number of HEALTH. Let us hear how you are in a week or so after using the tonic.

SEMPACH.—Dr. Pratt's "Sermons to Young Men" (Ballière, Tindall, & Cox) might suit you. There is no other work we can recommend, but we shall be glad to advise you on any matters if you specify your difficulties.

F. C. A.—The person you consulted is practically a quack. His advertisement shows this, and his style of address is both imprudent and thoroughly unprofessional. Our advice to you is embodied in that given to "Glaucus" in present number of HEALTH. You are now in good health. Don't let any one persuade you that you are ill. By simple attention to your general health you will completely regain all your vigour.

J. B.—Why not use Vaseline, which is the product of petroleum? Probably this was what was meant by the "petroleum" which was mentioned in the periodical. For the hair we recommend the patient to use the following:—Balsam of Tolu, two drachms; oil of rosemary, twenty drops; tincture of cantharides, one drachm; castor-oil, half-an-ounce; prepared lard, one and a half ounces. Rub in night and morning to the roots of the hair.

T. W.—If you wished advice from the gentleman it was quite right he should demand a fee; but if he wishes the experiences of persons who have adopted a vegetarian dietary, and if you merely complied with this request, his demand for a fee is certainly a strange one. We thank you for your note.

MARKSMAN.—Smoking will certainly do you harm in your present nervous state. Our best advice to you is to visit your nearest town (*e.g.* Sheffield) and undergo a thorough examination by a competent physician. Only by a course such as this will your mental state be relieved. All other attempts to advise you would be useless. Our own idea is that probably there is not much wrong—certainly nothing that rest and ease will not cure.

JUNIUS.—A good surgeon might advise you to some apparatus or mode of treatment. If you wish it, we can send you address of such on receipt of stamped addressed envelope.

JUNIUS (Edinburgh).—You probably ruptured or strained a ligament of the ankle. We fancy cold effusion, or perhaps the cold and hot douche played on your foot alternately, would do you good. But in such a case there is always greater satisfaction in your having a really good surgical opinion. We can send you address of a good surgical authority in Edinburgh on receipt of a stamped addressed envelope. This is our best advice to you.

R. MASON.—You might try the iodide of potass mixture recommended to "George," in No. 57 of HEALTH. Let us hear how you are in a week or two.

ALMA.—We think you should attend strictly to your diet. Rest, especially after meals, for an hour or two. Take pepsine after your food. Let the food be very light for a time; milk, eggs, light puddings, &c., and avoid mental work and worry, as much as possible. Are you not overworked? A change of air to the seaside would also be all in your favour. In our opinion, your chief necessity is rest in a pure atmosphere. In case of persistent sleeplessness, fifteen grains bromide of potash might be taken on alternate nights in water at bed-time, for a few nights only.

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HEALTH

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, MAY* 23, 1884.

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Notes by the Way

"Health is the foundation of all our physical happiness."—*Herder.*

Miss Jex-Blake, M.D., has written a letter to the *Scotsman*, in which she directs the attention of parents and guardians especially to the dangers which may arise from children being allowed to play in cemeteries. The following is the letter referred to:—"Will you allow me to address a word of warning to parents respecting the unsuspected danger to which young children are frequently exposed by nursemaids' preference for cemeteries as a place of exercise and amusement? In this spring weather the matter is of real importance, for any visitor to a cemetery will probably find at least two or three parties of children who are playing or strolling leisurely within these enclosures, and are consequently exposed (as I have verified from personal observation) to the highly dangerous emanations from the surrounding graves—such emanations being not unfrequently in hot weather absolutely perceptible to the sense of smell. I believe that such exposure is often at the bottom of cases of unexplained illness in the nursery, and I am quite sure that the risk is a very real one, and that, when once alive to the danger, no careful parent will allow it to be incurred."

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There is little doubt that, in the main, Miss Jex-Blake is perfectly within bounds in saying that the air of graveyards is not a fitting atmosphere for the enjoyment of children. It might be added that the cemetery is not by any means a place of recreation for older people as well. There is ample evidence, of course, that the disturbance of a graveyard has given rise to serious epidemics. Numerous instances are known in which fevers have been induced in those who have had to superintend exhumations of bodies.

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In support of what Miss Jex-Blake contends for, the evidence of Mr. Chadwick and the "General Board of Health" may be cited. This evidence showed that, in churchyards overcrowded with the dead, vapours were given off which produced various ailments. In such localities the air is loaded with organic particles; and a notable fact was elicited regarding such places, when it was found that the cholera epidemic of 1849 was specially fatal in the neighbourhood of old City churchyards in London. There seems little doubt that the pollution of soil consequent on the overcrowding of cemeteries—an unavoidable feature of our modern civilisation—will come in time to form one of the most powerful facts in favour of cremation as a rational mode of disposing of the dead, whilst keeping in view the safety of the living. One thing, however, is clear—namely, that as things are, the cemetery is not a place which either old or young should regard as a recreation ground. "Meditations among the tombs" are not sanctioned by sanitary science, under whatever aspect they may be regarded by poetic license.

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Last week, we alluded to the health-aspects of the carpet-beating practice. With regard to the horrible nuisance of howling and barking dogs, the case is widely different. Carpets must certainly be cleaned, but a dog which spends the greater part of the day, and which occupies the hours of the night as well, in the free use of its vocal organs, is simply an unmitigated nuisance, and a positive danger to health through the irritability such harassing sounds engender in most persons who have ears to hear and nerves to be worried. We have known of persons whose rest has been disturbed night by night through the persistent barking of a neighbour's dog, and who have met with but scant sympathy, and less politeness, when a civil complaint has been tendered to the owners of the animal.

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It is true that the law may be invoked to repress such a nuisance; but legal proceedings always involve worry, and beget ill-feeling; and so the sensitive person has no choice between entering a Court and suffering a nuisance,—or indeed, of shifting his camp altogether; the latter procedure being, of course, utterly impossible in many cases. We are continually receiving testimony regarding the serious effects of this dog-nuisance; and we therefore make these remarks in the hope that, to some extent, they may assist the repression of an evil which possesses the power to make the social life of those exposed to it especially wretched. It might be added, that the dog which barks and howls continually is not a healthy animal, and is probably living under conditions which constitute a life of pain and discomfort to the canine nature itself.

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Talking of beating carpets, we are reminded that the necessity for belabouring these articles of house-furnishing, by way of ridding them of the dust they have accumulated and intercepted, no longer exists. A new and ingenious system of carpet-cleaning by machinery has now been perfected, and may be seen in operation at the works of Messrs. Simmons & Tullidge, Station-road, Camberwell, London, S.E. By the process in question carpets are cleaned, moths destroyed, and colour restored; the fabric is moreover not liable to injury, as in the primitive methods. A system of revolving cages effectually cleanses carpets of dust, and the thoroughness of the process must be a distinct aid to health in its effectual clearance of the germs and "motes" that harbour and convey disease.

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We are glad to note that the "International Health Exhibition Handbooks" are in course of publication. These books we shall duly notice in the "Bookshelf" page of Health. The educative nature of the Exhibition must be largely aided and supplemented by the publication of such a highly useful and practical series of guides to healthy living.

Health-reformers have never been weary of dilating upon the abuse of tea-drinking, and upon the fact that tea is a beverage adapted only to supplement foods, and not to replace true foods in any sense. In this light, the abuse in question is the consumption of tea by the poor, who spend money largely upon it, and who appear to regard this beverage as the one and only fluid suited to nourish and sustain them. In opposition to the fact that tea is not a food, the statement that good cocoa is a reliable article of dietary has been long made and reiterated by sanitarians. It would seem as if these teachings were at length beginning to bear fruit. In the Revenue returns for the first quarter of the year, the quantity of tea imported is shown to have decreased by 80,000 lb., while, conversely, that of cocoa has increased by 650,000 lb. Any teachings which tend to recommend the substitution of cocoa for tea, in the case of those who have little choice of foods and small means to procure them, cannot but be warmly seconded by all who have the welfare of the masses at heart.

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Mr. Seymour Haden, the well-known advocate of the "earth to earth" system of burial is, of course, thoroughly opposed to cremation as a system of disposal of the dead. In a letter to the *Lancet*, Mr. Haden speaks of cremation as "going out of its way to improve on nature." If this statement is to be taken as an argument against cremation, it is clear Mr. Haden's logic and consistency are both open to question. Do we not endeavour to "improve on nature" whenever we treat a case of disease? Do we not even "improve on nature" when we bury a body in the earth, as Mr. Haden would have us do? If "nature" is to be our guide in disposing of the dead, we should allow the body to remain above ground to be acted upon by nature's agencies, to be disintegrated by the oxygen, and to be at last made one with the inorganic elements of air and earth. Again, what are we to say of the germs of disease which, as in the case of cholera and other ailments, are simply added to and preserved in the earth both in Mr. Haden's system, and in the common practice of burial? Every "disinfectant," to carry Mr. Haden's logic to its conclusions, is bad, because, by using it, we try to "improve on nature." It is clear cremation has nothing to fear from arguments of this kind. It is really the only system of "burial" under which the safety of the living can be thoroughly assured.

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The dangers of impure ice, taken from rivers, lakes, or ponds into which sewage is allowed to escape, have been frequently alluded to. It seems that the State of Connecticut possesses highly-enlightened sanitary advisers, and an equally intelligent Executive. We learn that a Bill has been passed in the above State, prohibiting the taking of ice from any river, &c., within two miles from the mouth of any sewer discharging into such water. Such an enactment may secure, if not positive safety, at least, the prevention of common cases of illness produced by ice taken from notably impure sources.

A Valuable Invention.—It is gratifying to learn that Mr. R. Adams, of 17, Blackman-street, London, S.E., whose fanlight-openers and silent door-springs are being extensively used, has received large orders for his Patent Reversible Window. The sashes, although they slide up and down in the usual way, can be nstantly turned inside out, enabling anyone to clean each side of he glass with ease, while standing in the room.—[Advt.]

Original Essays

"Life is not to live, but to be well."—*Martial.*

MEMORY AND BODILY ILLNESS.

By Dr. Andrew Wilson.

In our last paper we noted the curious fact that in cases of head-injury involving loss of consciousness, the patient, on recovery, recollects the details of his past life—that is, exercises his ordinary memory—save those which concern the half-hour, hour, or few hours before the accident. This period—varying in length in different cases—immediately preceding the accident remains a blank in the memory. There is perfect recollection of every event up to within a certain period before the accident. Of the events of this period, the patient on recovery can remember nothing whatever. As was shown in last week's Health, a man falls down a deep well, sustains severe concussion of the brain, and on recovery is puzzled and amazed at the loss of memory for events occurring just before his accident. "He actually makes guesses at his proceedings," to quote Mr. Joseph Bell's words, referring to this case, "but fails to explain to his own satisfaction, or to that of anybody else, what it was he was doing to the well and its rope." A lawyer, after concluding an intricate piece of business, goes for a ride on the sands. He is thrown from his horse and sustains brain-concussion. After his recovery, he can recollect nothing whatever of the business in question, although his memory for events long prior to the accident is as good as ever. The "lost hour" in all such cases is that just before the accident. This it is, which is the unwritten part of the mental slate—or shall we rather say the part of the mental slate the writing on which has been blurred, obscured, or perchance rubbed out altogether?

It becomes evident that in the details of such curious results of brain-injury and of loss of memory, we should find some clue to the nature of the memory processes. The expression concerning a thought being "driven out of one's head" would appear to possess an actual parallel in the history of the physical accompaniments or basis of memory. On the whole, the inferences which may be drawn from such cases are clear enough. As Mr. Bell has pointed out, in the act of what is popularly and collectively named "memory" there are at least two distinct processes involved. There must, in the preparation or preliminaries of memory, be a *reception* or *recording* by the "brain-cells" composing the grey matter of the brain of the impression made upon the organs of sense. The "gateways of knowledge," as Professor George Wilson long ago named the "senses," receive and transmit to the brain—and if recent research is trusted, to special parts of the central organ of the nervous system—the impressions we ordinarily speak of as the results of seeing, hearing, &c. Then, secondly, the exercise of memory proper involves the power of recalling, of *re*-collecting these impressions—a process varying greatly in different persons in respect of the ease, rapidity, and exactitude with which it is effected. So much, at least, is perfectly clear and evident as regards the essential nature of memory-acts; and this statement may be accepted without hesitation, even though we may be very far from understanding the exact *rationale* of the processes in question.

Turning to the cases described in our last paper, we may be able to note how, from the side of the unusual and abnormal in brain-functions, we may learn something of the manner in which the normal and natural work of the nervous centres is carried on. It would thus seem to be

a matter of tolerable certainty, that each impression made upon the brain-centres as the seat of intellect, requires for its due reception, and for its preservation, a certain period of time. The cases of brain concussion we have studied prove this much. As the sensitive plate of the photographer requires a certain period of exposure for the reception of the image, and as a still further period is necessary for fixation of the image thereon, so it may be said the nervous mechanism demands a certain period for the fixation of the impressions which are to do duty in the "memories" of the future. As Mr. Savory puts it, the mental ink must have time to dry. Any blurring, resulting from concussion, will render the after-production of the impressions which we name "memory," more or less imperfect, feeble, or it may be, altogether impossible.

In opposition to the loss of memory, for immediately preceding events, which a severe shock to the brain is known to entail, Mr. Bell records, what is a common enough experience of all who have had much to do with the administration of chloroform or other narcotics, namely, that "almost always, intelligent patients can recall with great accuracy the last words spoken before unconsciousness." In other words, the insensibility of the brain produced by chloroform does not erase the memory-faculty for events just preceding the administration, as brain-injury obscures the recollection of the patient. There is no "lost hour" in the case of the chloroforming, as in that of brain-concussion. It may even happen that if the patient is told to hold up one hand and to count aloud slowly while inhaling the chloroform, the hand falls as the patient ceases to count. After the operation has been concluded it often happens that *the next number to the one last counted is slowly pronounced.* What happens here is, therefore, clear and patent enough. The chloroform has merely suspended intellectual operations—it has not destroyed them. It has made the period of insensibility alone a mental blank; it has left entirely untouched the registration of the memory-impressions which were present just before the artificial sleep, as it has not interfered with those which succeeded it. So, also, in slight attacks of *epilepsy,* the momentary loss of consciousness which occurs leaves the memory impaired; the patient naturally and exactly resuming his conversation as if no "fit" had intervened.

The interesting deduction, then, remains—that apparently, judging by the results of surgical experience, impressions require a certain period of time for their registration and fixation in the brain. Of the exact time thus required for mental fixation of ideas or impressions we know nothing; but it is a perfectly justifiable inference that the period must vary with the individual constitution. It is more than probable that the "good memory" amongst other qualities, possesses that of ready, early, and rapid fixation of impressions. The monotonous repetition of words and ideas used by many in committing facts to memory, in this light may be viewed as a clumsy method of assisting the powers of mental fixation in question. The individual who requires "time to think" before he can guarantee his remembrance of what he has seen or heard, probably devotes the period of thought to the unconscious and involuntary registration of the impressions he has received; and differences in the rapidity with which ideas can be reproduced in the natural work of the brain, may therefore depend on the ease with which different individuals mentally effect this process of fixation.

That the mere process of receiving impressions and ideas which are afterwards reproduced by acts of memory may practically be of instantaneous character, seems proved by many well-known instances familiar to physiological inquirers.

The following example appears to show that the memory-faculty may be exercised unconsciously, and that the impression reproduced must have been received with marvellous rapidity and exactitude:—"In a Roman Catholic town in Germany a young woman who could neither read nor write was seized with a fever, and was said by the priests to be possessed of a devil, because she was heard talking Latin, Greek, and Hebrew. Whole sheets of her ravings were written out, and found to consist of sentences intelligible in themselves, but having slight connection with each other. Of her Hebrew sayings only a few could be traced to the Bible, and most seemed to be in the Rabbinical dialect. All trick was out of the question; the woman was a simple creature; there was no doubt as to the fever. It was long before any explanation, save that of demonical possession, could be obtained. At last the mystery was unveiled by a physician, who determined to trace back the girl's history, and who, after much trouble, discovered that at the age of nine she had been charitably taken by an old Protestant pastor, a great Hebrew scholar, in whose house she lived till his death. On further inquiry it appeared to have been the old man's custom for years to walk up and down a passage of his house, into which the kitchen opened, and to read to himself with a loud voice out of his books. The books were ransacked, and among them were found several of the Greek and Latin fathers, together with a collection of Rabbinical writings. In these works so many of the passages taken down at the young woman's bedside were identified, that there could be no reasonable doubt as to their source."

In this case, the fever served as a brain-stimulant and caused the reproduction of memories, of which, in her healthy and normal existence, the patient could have entertained no recollection; and that impressions, thus marvellously reproduced, must also have been received rapidly and registered indelibly are also inferences of justifiable kind. Michéa relates an analogous case showing how instantaneously the memory-faculty may operate in certain individuals. A young butcher, living at Bicêtre, suffered an attack of madness. During his paroxysms, he recited entire passages from the tragedy of "Phèdre." It was ascertained he had only once beheld the tragedy represented; and, on his recovery, failed to recollect a single verse.

A case of allied nature is that of a man who whilst a patient in St. Thomas's Hospital, London, suffering from a head-injury, spoke in a language, during his partial recovery from his illness, which no one could understand. The language was, however, found to be Welsh. The man was a Welshman, he had been thirty years absent from his native country, and before the accident, had completely forgotten his native tongue. The interesting sequel to these details is, however, found in the fact that when he had completely recovered, "he *completely forgot his Welsh again,* and recovered the English language." It would appear that the accident in this case had exhibited the remarkable effect of stimulating memories which from disuse had practically become obsolete in the normal and healthy existence of their possessor. Of the same order

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of cases is that of a boy who at four years of age underwent the operation of trepanning for fracture of his skull. After his recovery he had no recollection either of the accident or operation, yet, when suffering from fever at the age of fifteen, he gave, in his delirium, a full account of the operation, of the persons present thereat, and of their dress and other particulars. He had never been known, prior to his illness, to allude to the event of his childhood.

EXAMINATIONS, SCHOOLS, AND HEALTH.

By Geo. G. Chisholm, M.A., B.Sc.

FIFTH (CONCLUDING) PAPER.

We may now leave Board schools and go on to the consideration of schools of a higher grade. In these, also, there are evils enough from the point of view of health. Foremost among these I would place the growing practice of endeavouring to teach too many subjects. On this head there was, not long since, a timely communication from Mr. J. P. Mahaffy in the *Athenæum*:—"The present notion of a school education," he says, "seems to be that the properly-trained boy of seventeen is to know a good deal of everything—a perfectly chimerical undertaking. Until people make up their minds that whole fields of important knowledge must be deliberately ignored at school, no proper reform is possible."

The remedy for this evil lies mainly with parents. It is for them to see that their boys and girls are not taught more than they can be profitably taught—profitably in every way. Sometimes, indeed, the organisation of a school is such as not to leave this at the option of parents. I know, for example, of a case in a large northern city, in which some "Academy," or "College," or "Institution" for "Young Ladies" (I mean a girls' school)—an "Academy" of the most superfine description on the most advanced modern type—was attended by a daughter of one of the leading clergymen of the town. Among other subjects in the "course" which it fell to the girl to take was Greek. Her father intimated to the managers of the school that he did not want his daughter to learn Greek, and was told that if she did not take Greek there was nothing else she could take during that hour in her course. Very good; he did not want his daughter to take anything else. For a short while this was allowed; but soon the father was requested to withdraw his daughter from the school altogether if he did not wish her to go through the same course as other girls. No doubt she set a bad example. Probably she was the envy of all the other girls, and prompted them to be equally rebellious. A superfine education of the modern sort is, presumably, not to be got except by submitting to such regulations. A grievous privation!

For the most part, however, it lies with parents to decide what their children shall be taught and what they shall not be taught; and it is to be wished that all parents knew the importance of not seeking to have their sons and daughters taught too many things. The subjects taught at schools may be divided into two classes, those which are merely intended to train the mind, to impart a general culture, and those which are likely to be of direct use in after life. Now, with reference to the former, I don't wish to say a single word in depreciation of culture. Culture is certainly a good thing, and it is good that where possible it should be a comprehensive all-round culture. But how far such a culture can be given in a particular case will obviously depend wholly on the circumstances and capacities of the boy or girl; and this only need be said in general terms, that where the teaching of any subject begins to injure the health it ceases to train the mind, or, at least, to be the best training of the mind. That which in education is injurious to the health is also, in an educational sense, bad.

Then, with reference to those subjects which are learnt in order that they may be of use in after-life, it is just as obvious that the choice of subjects must be regulated according to what the future career is likely to be; but here again one general remark may be made, namely this, that, with a view to success in life, it is not so important that boys should learn a great many things as that they should have a good mastery of what they do learn, and every day it is becoming more important that boys should know, or be able to do, some one thing, or at most some few things, well.

Another evil to be guarded against is beginning certain subjects at too early an age. Often and often it happens that almost insuperable difficulties are met with by children in learning things which a year or two later might be learned without any difficulty, and even with pleasure, as everything ought to be. Such premature forcing leads to no saving of time, for the time wrongly given to what the child is yet unfit to learn could with more profit be devoted to something else. Even if it were all devoted to recreation there would be a profit in the end.

For both of the evils just mentioned, it is in the power of the parents themselves to provide the remedy, but the evil arising from the nature of the examinations so frequently held—that which has been already sufficiently illustrated—can only be corrected by the adoption of sounder ideas on the part of the examiners as to the proper aim of examinations. We have no wish to see examinations eliminated from school-life altogether. When they are directly based on the teaching given in the school, and designed to bring out the degree of intelligence and diligence with which that teaching has been followed, they are in their proper place, and are not likely to have any injurious effect on the health of those who are subjected to them, where the education is otherwise rationally conducted. But, even where they are not directly based upon teaching, they should always be free from the vice of indefiniteness, and the questions should always be so framed as to ascertain the amount of intelligence with which a subject has been studied, rather than the amount of knowledge of individual facts accumulated. In that way a judicious examiner will easily be able to discourage cram and to prevent it from achieving the success that properly belongs only to industry and intelligence, and that without resorting to the easy, but mischievous, device of making cram impracticable by leaving the subject of examination too vague to be crammed. In saying this I have no wish to deprecate difficulty as such in education. Difficulty is, of course, an essential ingredient in all intellectual discipline. But the difficulty that forms a genuine intellectual discipline ought to be such as is actually inherent in the subject which has to be mastered, and not that factitious and spurious sort of difficulty which is merely due to the indefiniteness of the task prescribed.

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Our Papers on Popular Science.

EIGHTH PAPER.

"Blessings on Science! When the Earth seemed old,
When Faith grew doting, and our reason cold,
'Twas she discovered that the world was young,
And taught a language to its lisping tongue."
—*Charles Mackay.*

HEAT.—III.

By Edward H. Riches, LL.D., F.R.A.S.

In our last paper we mentioned mechanical action as one of the sources of heat, and we defined mechanical action as action produced by one body on another, or the effort of one body upon another. An illustration of heat being generated by mechanical action is furnished us in the case of *vital power*, which, by the way, is impossible without *food*, for this vital power would seem to be the result of a kind of slow combustion, or change of carbon and hydrogen into carbonic acid and water. And we may note that this vital power proceeds according to certain fixed laws, just as other fixed laws which govern our physical being in all its complex motions, from the raising of an eyelid to the stretching out of one foot before the other in walking; and it has been found necessary in working out the relation between heat and mechanical power that a certain standard of comparison, or unit of work, be established, which unit of work is defined to be "the force required to overcome the pressure of one pound through the space of one foot."

Dr. J. P. Joule determined, by a very extensive series of experiments, that 772 foot-pounds, or units of work, have to be performed to raise a pound of water at about 50° Fahr. one degree; 772 units of work would thus be called the mechanical equivalent of heat, and an equivalent to a force that would raise one pound 772 feet high; or if we reverse the statement and suppose the same water falling through 772 feet, it would be raised one degree Fahr. The power or force used was measured by the descent of weights, which caused the apparatus—viz., an iron paddle-wheel—to rotate in water or mercury, and, by the friction of the iron and mercury, or water, to eliminate heat, which was estimated in the most careful manner. This standard, which is known as "Joule's equivalent," is of a most valuable and truthful kind; it was verified by Dr. Mayer, who, by different calculations and means, makes out the equivalent as 771·4 foot-pounds, which, though showing a slightly different result, certainly proves how very correct Dr. Joules' previous experiments and calculations were. Dr. Young says, "if that is not a substance, it must be a quality, and *this quality can only be motion.*"

It was Newton's opinion that heat consists in a minute vibratory motion of the particles of bodies, and that this motion is communicated through an apparent vacuum by the undulations of an elastic medium, which is also concerned in the phenomena of light. It is easy to imagine that such vibration may be excited in the component parts of bodies by percussion, by friction, or by the destruction of the equilibrium of cohesion and repulsion, and by a change of the conditions on which it may be restored in consequence of combustion, or of any chemical change. The effect of radiant heat in raising the temperature of a body on which it falls, resembles the sympathetic agitation of a string, when the sound of another string, which is in unison with it, is transmitted to it through the air. All these analogies are certainly favourable to the opinion of the vibratory nature of heat, which has been sufficiently sanctioned by the authority of the greatest philsophers of past times and of the most sober reasoners of the present.

Those, however, who look up with unqualified reverence to the dogmas of the modern school of chemistry, will probably long retain a partiality for the convenient, but superficial and inaccurate modes of reasoning which have been founded on the favourite hypothesis of the existence of caloric as a separate substance; but it may be presumed that in the end a careful and repeated examination of the facts which have been adduced in confutation of that system, will make a sufficient impression on the minds of the cultivators of chemistry to induce them to listen to a less objectionable theory. And now we know that these anticipations have been fulfilled. The re-establishment of the undulatory theory of light, by Dr. Young's exertions, has been followed by the reception of the dynamical theory of heat. In considering vital action as a source of heat, we may bear in mind that in the case of our own bodies, and of those of all living animals, there is a singular property inherent of maintaining within an equable temperature, notwithstanding that bodies hotter or colder may be surrounding us. For instance, in India and other hot climates people have their blood at no higher temperature, although the thermometer may stand at 115° in the shade; and, again, during a polar winter those courageous men engaged in Arctic exploration, although breathing air which was capable of freezing mercury, still maintained within their bodies a natural temperature of 98° Fahr.

Let us remember, then, that animal heat really is that which is generated within the tissues of a living creature; we know that it is due to chemical action, the result of respiration and nervous excitation. We may popularly say, then, that there is within each of us complex and wonderful machinery for heat-production, and the necessary amount of animal heat is ever being produced within us, provided we do our part towards keeping this machinery in order. In the cold and dreary winter weather there are many unsanitary temptations surrounding us; there is the breathing of impure air in badly-ventilated rooms (alluded to in a previous paper), the taking too little wholesome exercise, eating too much, and drinking stimulating drinks to excess. Good strong boots and warm stockings, and a brisk run or walk will ensure warm feet on the coldest day, and it is well known, though not always remembered, that when the feet are kept warm, the head will be cool, as it ought to be.

For young people, some form of lively exercise is better than long, fatiguing walks, and the good, old-fashioned skipping-rope for girls may be encouraged with advantage. It was said somewhere, that if the stomach, skin, and lungs be kept in good condition, not much care need be taken for the rest. In the case of invalids, if walking far be out of the question, in order that the animal heat within may become sensibly maintained, respiration and nervous excitation must be striven after, by some *short, brisk* exercise, and the external circulation of the body may be excited by allowing the body to be well rubbed. A chilling draught at all

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times is bad, inasmuch that it is calculated to derange that physical action which is ever going on within us, as a producer of vital heat, while, on the other hand, fresh air, of a proper temperature, will greatly assist the other way. Apart from human beings, it has been found that each species of animal and vegetable possesses a temperature natural and peculiar to itself, and thus we see how beautifully it is arranged that, owing to this diversity, different races are suited to live in different parts of the earth. And, just as we remarked in a previous paper, people may get accustomed to living in a bad atmosphere, owing to the consequent depression of their vital functions admitting of the possibility of their doing so, so it is that when animals or plants be removed from their natural habits to a different one, they either cease to exist, or else they change their character in such a manner that they adapt themselves to their new climate. For instance, we know that if we remove a sheep to the tropics, the wool changes to a kind of hair, and in the torrid zone the dog is very nearly destitute of all hair.

Again, if bees be taken from a northern clime and put down in some district where there is perpetual summer, they so change their condition that they do not lay up a store of honey for consumption during a winter which now, happily, they have not to experience. All animals are protected against the changes of temperature in different parts of the world by having as a covering for their bodies either fur, hair, or feathers, in the exact proportion necessary, and it is only to *man* that the privilege is given to live in all climates. He alone can migrate with impunity to all parts of the earth, but to this privilege is attached the responsibility of looking well after himself, and we shall in subsequent papers in continuation of this subject have several things to say, which, if rightly understood and remembered, will make him chary of neglecting any of the many laws upon which depend his animal heat and well-being.

We see that the name of Messrs. Ness & Co., Darlington, appears on the list of awards at Calcutta as having received a first-class certificate and silver medal for their "Thymo-Cresol" disinfectants (fluid and powder).

Whilst the dust of the external air, except in very narrow streets and densely inhabited districts, is found to consist principally of mineral matter, that which accumulates in the insides of houses is chiefly composed of organic matter.

Glue, Paste, or Mucilage.—Lehner publishes the following formula for making a liquid paste or glue from starch and acid:—Place five pounds of potato starch in six pounds (three quarts) of water, and add one-quarter pound of pure nitric acid. Keep it in a warm place, stirring frequently for forty-eight hours. Then boil the mixture until it forms a thick and translucent substance. Dilute with water, if necessary, and filter through a thick cloth. At the same time another paste is made from sugar and gum-arabic. Dissolve five pounds gum-arabic and one pound sugar in five pounds of water, and add one ounce of nitric acid and heat to boiling. Then mix the above with the starch paste. The resultant paste is liquid, does not mould, and dries on paper with a gloss. It is useful for labels, wrappers, and fine bookbinder's use. Dry pocket glue is made from twelve parts of glue and five parts of sugar. The glue is boiled until entirely dissolved, the sugar dissolved in the hot glue, and the mass evaporated until it hardens on cooling. The hard substance dissolves rapidly in lukewarm water, and is an excellent glue for use on paper.

The Family Circle

"The child is father of the man."—*Wordsworth.*
"In bringing up a child, think of its old age."—*Joubert.*

COOKERY FOR CONVALESCENTS.

By Mrs. Thwaites.

When an invalid has reached that stage of convalescence when he is well enough to sit at meals with the family, but is not yet sufficiently strong to partake of the meal provided, difficulty is often felt as to how small and inexpensive dishes may be provided. It is better to make too little rather than too much, and the preparation and serving should be of the daintiest.

Grilled Chop.—Choose one from the loin, or, if that is not to be had, the best end of the neck of mutton. Good meat will have a thick layer of fat, which must nearly all be trimmed off. If to be grilled over a fire, care must be taken to have a clear, red fire. The gridiron must be heated and the bars rubbed with a little fat. The back of the gridiron should be at least two inches higher than the front, so that the smoke from the dropping of the fat into the fire does not catch the meat. Steak-tongs should be used for turning, or a fork stuck lightly in the fat. A chop three-quarters to one inch thick takes ten to twelve minutes, according to the size and heat of the fire, and should be turned six times. It must be a golden brown. Put on a hot plate, and sprinkle lightly with salt and pepper. The piece of butter which many people who have to cook for invalids are in the habit of putting on, is by ne means conducive to digestion. The chop, when carefully cooked, should be full of gravy, and needs nothing more. A tablespoonful of mashed potato and some strips of nicely toasted bread should be served with it.

Minced Chop.—Cut all the lean from a tender loin chop, put it on a board, and with a sharp chopper chop it well in every direction; put it into a small jar, with a slight sprinkling of salt and pepper, one tablespoonful of stale bread-crumbs, and two tablespoonfuls of water. Put a buttered paper over the top of the jar, and set it into a pan of boiling water, the water to come half-way up the jar; boil slowly fifteen to twenty minutes; stir with a fork, and turn out and serve with whatever vegetable may be allowed.

Fillet of Chicken.—Cut all the white meat from one side of a chicken; lightly butter a dish and lay the fillet in; sprinkle lightly with salt and pepper; squeeze a teaspoonful of lemon-juice over; cover with a buttered paper, and set in a moderate oven for ten to fifteen minutes. It should be cooked until there is no trace of red gravy, but must not be dried up. Put on a hot dish with the liquor that has run from it, and serve with bread-sauce. Sauces of almost every kind must be avoided by invalids, but nicely-made bread-sauce is an exception, and may indeed be given instead of vegetables in many cases. Peel a small onion, and put it, with two cloves, into half-a-pint of milk; cover the pan, and set near a moderate heat for ten to fifteen minutes; take out the onion and cloves, and add to the milk three ounces of stale bread-crumbs; again cover the pan, and set near the fire (in ten minutes it will be thick); season lightly with salt, pepper, and two or three grains of

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cayenne. A quarter-ounce of butter, or, better still, a tablespoonful of cream may be stirred in. The quantity of crumbs given above will not always be correct; the quality and staleness of the bread will affect the thickness of the sauce. The sauce should be thick, without any pastiness.

Ground-rice Pudding.—One ounce ground-rice, put into a pan with a third of a pint of milk; set over a slow heat and stir until it thickens and boils. Draw aside for ten minutes, add one teaspoonful of sugar, a tiny pinch of salt, and the yolk of an egg; mix well, whip the white of the egg to a stiff froth and stir it lightly into the pudding; pour into a small buttered dish; bake quarter of an hour.

Custard.—The white of one and the yolk of two eggs, mix until smooth with a wooden spoon; add a quarter of a pint of milk (if the eggs are large a little more), a teaspoonful of sugar, and a pinch of salt. Pour into a buttered cup, cover with a buttered paper, and set into a pan of boiling water; draw the pan away from the fire so that it may be kept at simmering heat. Allow thirty to thirty-five minutes, and, to tell when it is done, just touch the centre. If firm, take up, let it stand five minutes, turn out. This custard may be varied by using stock or beef-tea instead of milk, and flavouring with salt and pepper.

Disposal of Kitchen Refuse.—Hardly anything in the whole round of domestic economy needs more attention than this. The dangers that may arise from want of attention fall alike upon rich and poor. In large houses, unless a mistress has some sanitary knowledge, out-of-the-way corners in back kitchens, &c., are left to the mercy of servants, who little know the mischief that may arise from their carelessness. Accumulation of waste animal and vegetable matter should be strictly forbidden; what cannot be used as food even for domestic animals ought to be burnt daily. Where there is a large garden, refuse may be buried; but gardens are the exception and not the rule. The objection frequently raised is the unpleasant smell which may be caused by burning; this may, with a little care, always be avoided. Where a Leamington or other close range is used, choose a time when the fire is bright but low; draw out all the dampers and put everything into the fire, close the door in front, and a very large amount of rubbish can be got rid of in a quarter-of-an-hour. In open fireplaces this is a little more difficult, but may still be accomplished. Put all vegetable matter under the grate to dry, then put it on the fire. The oven dampers must be drawn out; the strong draught up the oven flue will carry off the smell. Fish-bones and other scraps may then be burned.

The habit prevalent in many country places of keeping a swill-tub cannot be too strongly condemned. A day or two of damp summer weather is enough to cause a most offensive smell to be given off, which will poison the air of the sweetest country-place in existence. Artisans' dwellings in large towns become dangerous in warm weather from their close proximity to ashpits, which are made the receptacle of all kinds of decaying animal and vegetable matter. The ranges in houses of this kind are not so well adapted for burning refuse as those in larger houses, but the greatest evil that can arise from so doing is a temporary irritation of the eyes and nose for whoever may happen to be at home at the time, which is nothing compared to the illness which may be caused by the slow decay of animal and vegetable matter in ashpits. Much sickness might be prevented during the summer months if it could be made compulsory to have ashpits, &c., well sprinkled with chloride of lime or some similar disinfectant at least twice a week. It is to the women in households belonging to the working class that we must chiefly look for improvement. Could they but be impressed with a sense of the evils which arise from neglect of thorough purification of their homes, how many epidemics might be avoided, how much expense and heartrending trouble saved! There are many home truths, seriously affecting the well-being of whole communities, which might be advantageously dealt with in Elementary Schools.

Another important thing to be avoided is the stopping of drains from grease. This may be partially prevented by the use of soap-powder, which combines with the grease; but at least twice a week there should be poured down kitchen sinks one or two bucketfuls of boiling water, in which common soda has been dissolved.

Scott's Midlothian Oat-Flour.—There is no preparation which can be assimilated with greater facility than such a flour as this. Those who suffer from indigestion might substitute for their ordinary breakfast materials this flour, prepared according to the recipe given by Messrs. Scott and printed on the tins.—Ed. Health.—[Advt.]

The "Boncontour" Stay-Belt and other Orthopædic Apparatus, made by K. R. Schramm, Orthopædic Mechanician, 64, Belmont-street, Chalk Farm-road, London, N.W.—[Advt.]

TEMPERAMENT IN RELATION TO THE TEETH.

When the artificiality of artificial teeth is noticeable, the dentist has failed in a most important part of his work. He may have supplied dentures to serve the wearer for speech and mastication, but which, from an æsthetic point of view, are incongruous and unsightly. Dr. J. Foster Flagg, Professor of Dental Pathology and Therapeutics in the Philadelphia Dental College, has shown some of the causes of these mistakes in what he has written about the temperament in relation to the teeth. Starting from the four basic temperaments, bilious, sanguine, nervous, and lymphatic — following the marked distinctions of each through the various sub-classes of mixed temperaments — he shows how important is a thorough study of temperament for the successful practice of dentistry. The bilious temperament is marked by teeth that are bronze yellow, large and inclined to angular, set firm and close, with the gums heavy and firm, but inclined to angularity; the teeth of the sanguine are creamy yellow and inclined to translucency, well proportioned, smooth, moderately firm, with gums round and full; the nervous have pearl blue or grey teeth, with length predominating over breadth—inclined to transparency, and with the gums delicate, shapely, and fine; the teeth of the lymphatic are pallid and opaque, or muddy in coloring—large but not shapely, loose and flat, incisors devoid of depressions and elevations, and the gums thick and undefined in shape.

While a knowledge of the different varieties of the teeth naturally belonging to persons of different temperaments is thus seen to be important, in order that there may be a proper correspondence of the teeth with other physical characteristics, we suppose there is to be commended a sort of Darwinian selection, which will give each subject who has thus to be supplied with artificial teeth the advantage of the best selection in the class to which he or she belongs. This may be done, however, without "associating the massive tooth of the bilious with the pearl-blue colour of the nervous, or the long, narrow teeth of the nervous with the bronze yellow of the bilious," as is now occasionally done by some who, while they may be good dental mechanics, are certainly not dental artists.

Public Health

"Health is the first Wealth."—*Emerson.*

EARTH-BURIAL AND CREMATION.

By A. G. Cobb.

(From the *North American Review.*)

II.

To many it may appear that we have wandered unnecessarily into details of church history, but the cause is found in the oft-repeated statement of the anti-cremationists, that burial is a Christian custom that has endured for centuries. Burial is a Christian custom, and it has endured for centuries; but when we consider the prejudice that gave rise to it in Europe, the superstition that nourished, and the intolerance that ever stood ready to defend—when we consider these facts in connection with the well-authenticated cases of plague and epidemics that the custom has occasioned—one would think that all branches of Christians would gladly welcome any innovation that would consign the practice to a well-deserved oblivion. The whole question of the disposition of the dead, as the advocates of incineration have again and again asserted, is a sanitary, and not a religious one.

On investigating the condition of grave-yards, all sentiment clustering around the tomb is quickly dispelled, and a state of things horrible in its nature and dangerous in its effects arrests our attention. These form the strongest arguments in favour of incineration, and by their force seem to indicate that those who believe in the practice of earth-burial must be ignorant of the result of the custom they advocate. Scores of instances, in cities and in rural districts, both in our own and in foreign lands, verify the assertion of Dr. Adams, of Massachusetts, that the "Christian church-yard is often a contracted plot of ground in the midst of dwellings, literally packed with bodies until it becomes impossible to dig a grave without disturbing human bones; and the earth so saturated with foul fluids and the emanations so noxious as to make each church-yard a focus of disease."

Of the one hundred and seventy-one answers received by Dr. Adams, in reply to circulars sent to the regular correspondents of the State Board of Health of Massachusetts, both in the United States and Great Britain, more than one-third (sixty-one) gave their testimony in favour of the adoption of cremation as a substitute for burial. And this was in 1874, when the subject was first being agitated in this country.

At the outset it may be well to notice a statement generally advanced by the believers in inhumation, whenever the dangers arising from graveyards are spoken of. They inform us that cemeteries established in country districts, for the reception of the dead of cities, where each body is laid in a grave by itself, are not open to the objection of being overcrowded or dangerous. To this we can answer that all suburban cemeteries ultimately increase their area or become overcrowded, while the cities for the use of which they are intended expand in size until in time the abodes of the living and dead converge together.

Brooklyn furnishes an illustration of the evil of which we speak, being surrounded by a net-work of cemeteries. Within Greenwood alone, since its establishment forty years ago, two hundred and eleven thousand bodies have been interred. We can realise how startling has been its growth when we remember that since its dedication it has had neighbouring burial-grounds to compete with, and that when its gates were first opened Brooklyn contained only thirty thousand, and New York but three hundred thousand inhabitants. Brooklyn now has a population of over six hundred thousand; and Greenwood, once suburban, has become intra-mural. It need surprise no one to learn that the exhalations from this cemetery were recently complained of in South Brooklyn; and considering the thousands annually interred within neighbouring burial-grounds and the increasing density of our population, we can readily believe that the evil, instead of diminishing, will increase. Realising the gravity of this subject, Sir Henry Thompson, in an article in the *Contemporary Review*, for January, 1874, declared that, by selecting a portion of ground distant some five or ten miles from any very populous neighbourhood, and by sending our dead to be buried there, we were "laying by poison, it is certain, for our children's children, who will find our remains polluting their water-sources when that now distant plot is covered, as it will be more or less closely, by human dwellings." This feeling is shared by other distinguished English writers; and the London *Lancet*, of Jan. 11, 1879, speaking of the necessity of devising special measures for the disposal of the dead, said:—"The expedient of burial in suburban cemeteries is only temporary. It may last our time, but the next generation will be called upon to solve the sanitary problem in a more permanent way.

Graveyards, wherever situated, are in their nature transitory. Within the memory of men now living, what numbers of burial-grounds on Manhattan Island have been built over, and their very locations obliterated. Even remote rural cemeteries, from the death of those interested in them, or from the necessity of opening new streets or constructing railways, succumb to the march of improvement. Beautiful as they sometimes seem, and harmless as the advocates of inhumation would have us believe them to be, the putrid tenants of their vaults and graves contain the germs of contagious diseases; and disinterment is always undertaken at a terrible risk. The experiments of Professor Tyndall and others have shown "that certain organisms may be boiled for hours and may be frozen, and still survive to propagate their species." Grain entombed with Egyptian mummies for forty centuries has been planted, and sprouted into life. "By what authority, then," asks Dr. Peterson, in the "Buffalo Medical and Surgical Journal," "can we affirm that life departs from disease-germs by inhumation? How dare we preserve vast depôts in the South of yellow fever *fomites*, coffers of Asiatic cholera, and every year accumulate and treasure up small-pox, scarlet fever, whooping-cough, diphtheria, and measles?"

The sanitary records of nearly every nation show the force of the doctor's questions, and illustrate the danger of which he speaks. In 1828 Professor Bianchi demonstrated how the fearful re-appearance of the plague at Modena was caused by excavations in the ground where, three hundred years previously, the victims of the pestilence had been buried. Mr. Cooper, in explaining the causes of some epidemics, remarks that the opening of the plague burial-grounds at Eyam, in Derbyshire, occasioned an immediate outbreak of disease. He also describes how the malignity of the cholera, which scourged London in the year 1854, was enhanced by the excavations made for sewers in the soil where in 1665 those dying from the plague were buried. Mr. Simon had predicted this result, and warned the authorities of the danger of disturbing the spot. Mr. Eassie, in his splendid work on "The Cremation of the Dead," tells us that in 1843, when the parish church of Minchinhampton was rebuilding, the soil of the burial-ground, or what was superfluous, was disposed of for

manure, and deposited in many of the neighbouring gardens. As a result the town was nearly decimated; and the "Sanitary Record" adds, "the same would have occurred, one would imagine, even if the coffin-earth had been absent."

THE DISPOSAL OF REFUSE IN PARIS.

The number of the *Revue d'Hygiène* of Feb. 20, 1884, contains an article on this subject by Dr. Vallin, referring more especially to the tumult which has been raised by the *chiffonniers*, or rag-pickers, of Paris, because of recent attempts to enforce the ordinance that garbage and refuse shall not be drained into the streets. This deposit in the streets of house-offal is the ancient custom in Paris.

For many years the law was that this should only be done early in the morning, just before the carts were sent around to take it up, but, as a matter of fact, the emptying of slops in the streets began almost as soon as it was dusk, and the result was that the streets were in a very foul and malodorous condition.

Several attempts were made to remedy this condition of things, but the resistance of the rag-pickers to anything which would interfere with their privilege of turning over this mass of garbage and refuse, and selecting therefrom whatever can be sold, or in any way made useful, was sufficient to prevent any substantial improvement.

During the siege of Paris, however, it was found absolutely necessary, for the preservation of the health of the city, to forbid that they should, in the public streets, have garbage and refuge; and it was ordered that every householder should deposit such matters in waggons sent around for that purpose, at the time of their passage, which was announced by a bell. Moreover, it was directed that this garbage was to be kept in special receptacles placed by each proprietor or tenant at the door of the house at half-past five o'clock in the morning.

Dr. Vallin is inclined to doubt whether any improvement was effected, so far as the public health is concerned, by compelling each person to preserve, all night, within his house or in his apartments, these decaying or offensive matters, rather than permitting them to throw them out in the street. His view is, that these petty substances might annoy the nocturnal promenaders who were in their neighbourhood, and that they were rather unpleasant and harmful to health.

He admits, however, that in a city, such as Paris, where a great number of the people spend a large part of the time out of doors and frequent the public streets until late hours at night, it was necessary, as a matter of policy, to preserve cleanly streets at all times, and hence that there was a good reason for enforcing the above regulations, although this reason was not strictly a sanitary one. The result of the ordinance was, that many of the working-class and small tenants, in order to avoid the trouble of depositing every day the refuse of their houses in the carts, procured receptacles of dimensions sufficient to keep all the garbage for a week, and emptied it only on Sunday morning.

Dr. Vallin thinks that the outcry made by the *chiffonniers*, or rag-pickers, is out of proportion to the injury inflicted. There are about 7,500 persons of this class in Paris, but a large proportion of them have a regular route, and do their work in the houses rather than in the street.

For a full account of Paris street-cleaning, see a paper by J. T. Van Rensselaer, published as a supplement to the *Sanitary Engineer* of March 23, 1882.

To thin shoe blacking, use vinegar or sour beer, and shake well.

Jottings from the Journals

"Th' ingredients of health and long life are
Great temperance, open air,
Easy labour, little care."—*Sir Philip Sidney.*

Running for Trains.—The *Medical and Surgical Reporter* cautions those persons who are in the habit of "running for trains" against the practice. Even to one whose heart is sound, running, when not accustomed to such hurried movement, is certainly not beneficial to the delicate cords and valves of the heart; and should this organ be diseased, it must prove very injurious. We all know that violent and tumultuous action is to be avoided when the heart is weak, and we also know that running is not the way to avoid it. In our own experience, says the writer, we know several instances where men who had previously supposed themselves to be *sound* have run for trains, and, getting aboard, have fallen exhausted into seats from which they never arose. Better miss a train than run the risk of running into the jaws of death; for this strain on the heart cannot prove beneficial to one that is sound, while it is likely to prove disastrous to one that is weak.

Crossing the Legs, and the Mode of Sitting.—M. Delaunay, of Paris, has made an extended and careful investigation to ascertain if, in the majority of cases, the right upper and lower extremity be crossed over the left, or the left over the right, and which side most persons incline to when in the sitting posture. According to M. Delaunay, certain breeds of dogs, such as terriers, Newfoundlands, and poodles, cross the right paw over the left. The Chinese and Japanese cross the left arm over the right. Europeans cross the right over the left. M. Delaunay observed, in the *crêches* and *salles d'asiles*, that infants under three years of age cross the left arm over the right, older children cross the right over the left: sixty per cent. doing so at six years of age. Robust children cross the right arm over the left; the idiotic and weak, including those who are incapable of working, cross the left over the right. The Kalmucks and Arabs cross the right over the left, like the Europeans. A great many women cross the left leg over the right. Among the opera-dancers some always cross the right leg over the left, but not one the left over the right habitually; the majority cross the left over the right or the right over the left indifferently. Robust children cross the right leg over the left earlier than their weaker playmates. Persons who cross the right leg over the left lean towards the left when sitting, those who place the left uppermost lean to the right. Hence, consistently with what might have been expected from what is observed in children with regard to crossing legs, until six years of age children lean towards the right, and afterwards towards the left. French schoolmasters, it would appear, try to prevent their pupils from assuming this position, believing that injury results, hence they encourage or enforce the law of elbow-rests (*accoudoirs*), which oblige the children to sit straight, a useless measure according to M. Delaunay, as the position they choose is in conformity with the process of evolution. Tailors affirm that the back of a pair of trousers is always worn more on the left side than on the right. Left-handed people always sit towards the right. M. Delaunay concludes from these observations that the left brain developes previously to the right, and finally the right predominates.—*British Medical Journal.*

Recreation and Health

"Health is the vital principle of bliss,
And Exercise of health."—*Thomson.*

CALISTHENICS, OR LESSONS IN PHYSICAL EDUCATION.

BY H. C. STANDAGE.

TENTH PAPER.—DUMB-BELL EXERCISES (*continued*).

"BY systematic and regular exercises, the breast-bone with the collar-bones will be projected forward to their normal position, and at the same time the various muscles necessary for the purpose will be so strengthened as to retain them in this normal position without the necessity of resorting to any artificial aid, such as locking yourself up in miscalled 'figure improvers.'"

"No, Charlie, don't say 'miscalled,' for I'm sure some corsets have very beautiful curved outlines!"

"Just so; an exhaustive example of Hogarth's 'Line of Beauty,' full of serpentine curves, but lacking in any that should fit to the natural conformation of the human body."

"Really, now, Charlie, you are too severe. Even with your artistic eye you must admit that those curves are more beautiful than a line running straight up from the hip to the shoulder. I know you do not like small waists; but, then, if we do not lace in too much, corsets just assist to produce an agreeable outline to the figure, a corset accentuates the size of the waist from the shoulders."

"At the expense of breathing properly, and sowing the seeds of consumption, and a host of other bodily ills!"

"But you would not have me give up wearing stays, would you, Charles?"

"I'll answer that question by asking another. Which do you prefer—an artificial form to your 'bust,' a form that varies every time a brainless fashion-leader elects to distort her natural figure; short wind, inability to take a fair walk, or slight exertion as lawn-tennis, to sing, and hunt—the probable result of permanently injuring the breathing organs, and slowly shortening the natural term of your existence; or would you prefer to possess healthy lungs, a capability of playing tennis, rowing a little, or riding, without feeling thereby a thorough exhaustion afterwards, as you now sometimes complain of after an hour on horseback? Would you prefer these, added to the power of singing well, and possessing a bust that is in every outline graceful, and naturally easy in pose?"

"I am not bereft of common-sense, Charlie, and I can give you but one answer."

"And that?"

"That I prefer the advantages to be gained without corsets to the disadvantages incident to their use."

"That's right, Anne; like your own sensible self. You persuade the girls to do likewise and I'll guarantee you will never regret it, for after a few months' training in these exercises, you will have as fully developed a figure as the most fastidious mind could wish to see. And you will no longer earn the pity and, possibly, contempt of man's mind, as you do now, for being so weak as to injure your health and ruin your beauty, just because that arbitrary old beldame Fashion decrees that you should have a pinched-in waist. I really believe the female human body has been more ridiculously tortured, disfigured, and deformed, and made to take various shapes than any other part of our person. In fact, I am so impressed with the absurdity of these hideous distortions that I am collecting examples of the various shapes the bust, waist, and body in general has been made to assume just to please Dame Fashion's vagaries——

"Why, Maud, what is the matter?"

"We have been waiting for you to come up and give us our lesson to-day, Charles; but you have been so long we have come down for it, but you will not keep us long now, will you, as we want to go out?"

"Not if you wish it; but there is one thing, now you are all together, which I forgot to tell Anne. I have explained the action of the dumb-bell exercises as regards developing the shoulders; I also wish to tell you that the exercises where you have to stoop to pick the bells up from the ground, are intended to produce a lithesomeness in the backbone, to give freedom to the joints, and power over the lower limbs, and at the same time enable the body to be balanced thereon in a graceful poise. Now, let us begin.

"Stand in line, as before, and every second one—that is, the 'even' numbers—step back two paces and remain at 'attention.' Next fold the arms behind your back, elbows resting in the palms of each hand, or else fold them across the chest. That's right. Oh, I see, Ethel, you can hardly get your arms so far behind you. You must go through a few more exercises in swinging round the arms. Now that you are in position, in the words of the late Mr. Maclaren,* 'make a full step to the front with the left foot, the right remaining firm, and flat on the ground, the knee well braced back, and the hips pressed forward, the head upright, the breast advanced, the shoulders flat, and the eyes directed to the front.' Now, bring the right foot up to the left and stand erect; then, on the word 'March!' again step to the front with the left foot. Repeat this movement six times, then do likewise with the right foot.

"Now you have moved twelve paces from your first position. I will ask you to go back to it, but by stepping backwards. To do this, make a half-right turn on the heels (see previous instructions), and then step back with the left foot for six paces, and then the right for the remaining six paces. Make a pause between the 'recover' (*i.e.*, standing erect) and the next step.

"You will notice that when you have made the steps, that the body is balanced equally between the lower limbs, and the weight of the body rests somewhat on the stretched-out leg. The muscles of the thigh that is stretched on stepping forward, are in tension, preparatory to springing up when the body is to stand erect in doing the forward march; but when doing the rear march (*i.e.*, stepping backwards), the muscles of the limb that is straightened are pushed together in anticipation for the upward spring of the body.

"Now you are back again for the starting-point, stand at 'Attention!' Then take a side pace to the left, of ten inches, with the left foot, and then a side pace of ten inches to the right with the right foot. Now stoop down and rise up six times in succession. In stooping down, do not lean forward nor backward, but keep the body perfectly upright, bending only the knees and hip joints.

"In this movement, you sit down almost on to your heels, the knees being slightly pushed forward. You can vary this movement by keeping the leg, from the ankle to the knee, perfectly perpendicular to the ground, but you must then bend the body slightly forward. You will find some difficulty in doing these movements easily at first, until the muscles are strengthened sufficiently to exert their influence on the misplaced centre of gravity of the body.

"'Stand at ease!' 'Stand easy!' When I say 'Stand

* Mr. Archibald Maclaren, of the Gymnasium, Oxford, recently deceased.

at ease,' you can move any part of your body but the feet. When I say 'stand easy,' you can move about. Now stand at 'attention,' with your arms hanging closely by your side. Raise them in *a line* with your shoulders, fingers pointing respectively left and right, carrying them above your head—mustn't bend the elbows—and then lean forward, bending the body at the waist, but keep the knees stiff and unbent. Bend the hands downward until the finger-tips touch the toes, spring up, so that the fingers touch above the head and point upwards, then, swinging the hands forward, sweep them round to the back, and then bring them to the side once more. Repeat these movements six times.

"Now, we'll defer the remainder of this lesson till to-morrow; but I see I shall have to put you into a uniform. I'll give you the patterns of my 'Calisthenics and Young Girls' Dress' to get made up. You will want some other style than your present dresses for future exercises."

The Worshipful Company of Drapers have been pleased to grant a donation of twenty-one guineas to the National Health Society, 44, Berners-street, W., for the diffusion of sanitary knowledge.

The law makes common carriers responsible, regardless of accident, for damage done either to person or property; yet an American citizen may refuse the protection which vaccination affords against small-pox, carry that loathsome disease into a community, and start an epidemic.

Eucalyptus Oil.—Mr. E. H. Grumiade, noticing a statement in the *Pharmaceutical Journal* that Eucalyptus oil of the kind that has been in the market for some years is obtained from *Eucalyptus globulus*, writes that this is an error. Eucalyptus oil was first distilled by Dr. Bosisto, of Melbourne, twenty years ago, from the *Eucalyptus amygdalina*, which is as distinct from *E. globulus* as *Mentha piperita* is from *M. sativa*, and is an entirely different oil from that obtained from *E. globulus*. The success which Dr. Bosisto's oil has met with has induced people having no knowledge of the different kinds of Eucalyptus, or gum-trees, as they are called in Australia, to distil any oil from the leaves gathered indiscriminately from one or any of the forty or more Eucalypti growing in the Australian bush, and consequently have obtained an oil totally different from Dr. Bosisto's. Two years ago Dr. Bosisto distilled an oil from *E. dumosa*, or, as it is known in Australia, the mallee scrub. This oil differs slightly from the amygdalina in perfume, but Dr. Bosisto is of opinion that medicinally its properties are the same. The *E. globulus* is the tree that has a great power of absorbing moisture from the earth and passing it off by its leaves into the air, and has hence been largely planted in malarial districts. The introduction of this tree into Europe (at Rome, &c.) has doubtless been the source of the constant confusion as to the origin of Dr. Bosisto's well-known oil.—*British Medical Journal.*

Medical and Sanitary Exhibition, 1881.—Award of Merit.—Diabetes. Van Abbott's Gluten Bread, and all other suitable Foods for Diabetic Patients. Dietary Tables and Price Lists post-free on application. Van Abbott, 5, Princes-street, Cavendish-square, W.—Delicate Children and Adults Suffering from Nervous Depression. Van Abbott's Hypophosphite of Lime Biscuits, for Delicate Children, especially those suffering from Deficiency of Bone, Weak Joints, or Debility, and Adults suffering from Nervous Depression. Each Biscuit contains five grains of the Hypophosphite of Lime. "Quite free from disagreeable taste, and taken willingly by Children, and certainly provide an excellent means of administering this valuable compound. Our analysis proves the accuracy of the printed descriptions on the labels of the boxes. The Biscuits were suggested by Mr. W. Adams, of the Orthopædic and Great Northern Hospitals." — *Lancet*, Nov. 4, 1876.—Van Abbott, 5, Princes-street, Cavendish-square.—[Advt.]

Our Bookshelf

"Reading maketh a full man."—*Bacon.*

LITERARY JOTTINGS.

Kaiserswerth, the Deaconess Institution of Rhenish Westphalia, its Origin and Fields of Labour, by Julius Disselhoff, Director. (London: Hatchards, Piccadilly.) This is an account (translated from the German by "A. N.,") of a most laudable institution, combining in its aims those of a home of various poor and needy persons, a lunatic asylum for Protestant women, an Orphan Asylum, a Training School for Infant-teachers, &c. The system here described, has affiliated institutions both in and without the bounds of the German Empire. The account of the charitable work carried on by the Institution is of a most interesting kind; and the pamphlet well merits perusal as showing how, from small beginnings, a great philanthropic work has sprung.

Cremation, a lecture by J. C. Leach, M.D., was lately delivered before the Balloon Society of Great Britain, is an able argument in favour of this practice. The author gives a clear exposition of Cremation and its advantages, and he is no less successful in the attempt to remove the objections which have been urged against this method of disposing of the dead.

Invalids Recipe Book, by J. L. Crombie, M.D., North Berwick. (Edinburgh: Thin & Gemmell.)—This is a neat, handy little pamphlet of some thirty-two pages; designed, as the author tells us, to enable patients to keep medical directions in mind. It contains recipes for the preparation of most of the foods required for the treatment of ailments; and a useful appendix includes some simple medical directions which are not always acted upon or remembered by patients. The section on the use of disinfectants is also a valuable addition to the little manual; but the author might, we think, have drawn distinctions between those disinfectants which are volatile, and those which cannot act through aërial diffusion. The pamphlet is really a wonderful production at the price—one penny; and we can warmly recommend it to the notice of all interested in the diffusion of sanitary knowledge among the working-classes and others.

The Sanitary Chronicles of the Parish of St. Marylebone for March, 1884, by A. Wynter Blyth, Medical Officer of Health.—Mr. Blyth, as usual, issues a very full and complete report of the sanitary state of the district under his care. The tables showing the various health statistics, are clearly arranged, and include information regarding both water and gas supply. We might suggest, as a slight improvement on the table of the water-supply, that an opinion should be added indicating, for the benefit of those unlearned in chemical details, the quality of the water supplied by the various companies to the district.

Memorandum on the Tent Hospital at Gore Farm, Darenth, Kent, for Small-pox Patients, by A. and C. Harston.—This is a highly useful schedule drawn up by the architects of the hospital in question, and showing with exactness the construction and other details connected with the building. As such, this memorandum should prove highly useful to corporations, builders, and all who are in any way connected with the erection of similar buildings.

She asked for toilet soap, but when the clerk recommended some as being good for keeping off chaps, she remarked that wasn't the kind she wanted.

Sanitary Appliances, Etc.

HEALTHY HEADGEAR.

We have recently had an opportunity of inspecting the various improvements and new inventions in hats, &c., for which the house of Mr. Henry Heath, 105 and 107, Oxford-street, London, is deservedly famous. Amongst other features of Mr. Heath's business that of assuring the comfort of the wearers by providing a hat that really fits the head, is not the least important. The disagreeable sensations produced by a hat which cuts the forehead and induces an "extra wrinkle" are only too well known. Mr. Heath's mode of fitting hats entirely obviates this disadvantage, and supplies the wearer with a hat which really fits the head. The ventilation of hats is also thoroughly attended to in the work of Mr. Heath's house, and a very common cause of hair-decay is thus avoided. We have been particularly struck with the "soft-banded hats" of Mr. Heath, in the wear of which there is a total absence of those disagreeable sensations which the sterner sex know only too well when a new hat has been worn for the first decade of its existence. For those who reside in the country, Mr. Heath's "self-measuring band," which he forwards post-free when required, forms a convenient and reliable means of procuring a hat which will fit well. Mr. Heath has also made a feature of hat-manufacture for ladies, and dress-reformers have shown their appreciation of his efforts for the comfort of the fair sex in the shape of a medal which was awarded Mr. Heath at the Exhibition of "Rational Dress" last year. A very neat "ladies' travelling hat" struck us as ranking amongst the most commendable of the many products of this firm. Clad in such a hat, ladies may travel in comfort, and without requiring to envy the freedom from care of headgear possessed by the opposite sex.

The Population of France.—The following may be taken as reliable statistics:—Of the 37,672,048 inhabitants of France, 1,101,090 are foreigners, of which 432,265 are Belgians, 240,733 Italians, 81,986 Germans, 73,781 Spanish, 66,281 Swiss, and 37,006 English. The number of foreigners naturalised is small, only 77,046.

Tattooing among Civilised People.—Last December Dr. Robert Fletcher read a paper on tattooing among civilised people, which he is now publishing. The custom presents itself from two points of view—the medico-legal and the anthropological. Compared with the elaborate tattooing of many savage tribes, the designs which sailors, soldiers, and, above all, criminals, have imprinted on their persons, are trivial or offensive in subject, or clumsy in execution. In 1869 Berchou made several reports to the French Government on tattooing among sailors and criminals, and published a work entitled "Histoire Médicale du Tatouage." At the meeting in Algiers in 1881, of the French Association for the Advancement of Science, Magitat exhibited a chart showing the geographical distribution of tattooing according to methods, as follows:—(1) By pricking; (2) by simple incision; (3) by ulceration or burning; (4) hypodermic tattooing; (5) mixed tattooing. Among the distinguished observers of this practice are Cesar Lombroso, of Turin, and Dr. A. Lacassagne, of Lyons. Lombroso publishes a chapter on tattooing in his "L'Uomo Deliquente," and Lacassagne is the author of a volume entitled "Les Tatouages, étude Anthropologique et Médico-Légale." He gives a table showing the parts of the body operated upon in 378 subjects, and also one containing the details of 1,333 tracings obtained from the battalion d'Afrique, as follows:—

Patriotic and religious emblems	91
Professional emblems	98
Inscriptions	111
Military emblems	149
Metaphorical emblems	260
Love emblems	280
Fantastic, historical, and miscellaneous	344
	1,333

Our Letter : Box

"Conference [maketh] a ready man."—*Bacon.*

LETTERS TO THE EDITOR.

DR. DOMETT STONE ON VACCINATION.

Pine Villa, South Streatham, S.W.,
May 12, 1884.

Sir,—As requested, I now beg to hand you particulars as to the source of the figures, &c., made use of in my letter which appears in this week's Health; but, first, let me observe that your objection to the paragraph in which I refer to "the great danger attending the practice of inserting matter of which nothing is known into bodies of which about the same amount of knowledge is possessed," is only a reasonable one on the supposition that I intended to imply, that the medical profession were "ignorant of anatomy and physiology"—anything so absurd I did not wish to imply for one moment; but I had in mind at the time of writing your statement in p. 34 of Health for April 27, 1883, in which you say: "We are, as a nation, too much given to pouring drugs of which we know little into the bodies of which we know infinitely less."

The figures referring to population and deaths from 1851 to 1880 were taken from Mr. P. A. Taylor's pamphlet, and others issued by the London Society for the Abolition of Compulsory Vaccination, 114, Victoria-street, S.W., and, if you will kindly refer to these figures again, you will observe that, making a liberal allowance for increase of population, there is still a great increase in the number of deaths from 1871 to 1880.

Without trespassing further on your valuable space, permit me to say that any further information as to facts and figures, I shall only be too happy to supply—I remain, sir, your obedient servant,

G. Imeson.

[Mr. Imeson is more ingenious than convincing in his reply. He tells us he does not imply that medical men are ignorant of anatomy and physiology, but he equally leaves us still in doubt as to the meaning of his former words. As we are left only one alternative, we must accept this conclusion—namely, that Mr. Imeson's statement that nothing is known of vaccine matter, and that about the same amount of knowledge is possessed of the human body, applies to the operation and effects of vaccination. If Mr. Imeson seriously thinks that "nothing is known" concerning vaccine matter, we can only feel sorry he has ventured to champion a cause without first preparing himself for his task. His figures (as we suspected) are derived from a source, the correctness of which is open to question. The statistics quoted have been debated again and again, and increase of population, as tacitly admitted by Mr. Imeson, has been somewhat ignored, in deducing results from the figures in question. With the desire to set Mr. Imeson cogitating over the possibility of there being "another side" to the question, we beg to present him with the following facts as "food for thought." The Sheffield Medical Officer of Health reports that a wave of small-pox is now, and has since the beginning of the year, been existent in England. He gives particulars upon the subject in respect of the 28 large towns. In ten towns in the 17 weeks ending January 5th to April 26th the total deaths from this disease has been 287, divided as follows: London, 104; Birmingham, 60; Sunderland, 57; Liverpool, 39; Newcastle-on-Tyne, 10; Sheffield 8; Wolverhampton, 4; Manchester, 3; and Derby and Hull 1 each. As is almost the invariable experience elsewhere, the eight deaths in Sheffield were unvaccinated persons; in fact, not one of the whole number of the persons who became ill, had been re-vaccinated since childhood. Only ten had the disease in its most virulent form, and all these ten were unvaccinated persons, and eight had died. None who had been vaccinated in childhood had the disease in a very severe form, and up to now all had recovered. He urges the use of redoubled energy in vaccination, and recommends that medical gentlemen be paid for re-vaccinations. Will Mr. Imeson and his friends kindly break a lance with the above facts? It will be well worth their while to lay by the Anti-Vaccination Society's literature for a little—it has been worn rather threadbare of late—and to inquire how it comes to pass that in Sheffield the unvaccinated have fallen while the vaccinated have escaped?—Ed. H.]

AN EDUCATIONAL SUGGESTION.

Sir,—At my sister's school they have a plan of prize-giving which would, I am certain, if adopted in every girls' school, considerably reduce the usual headache, anxiety, sleeplessness, loss of spirits and temper, and, in my opinion, the general thrashing out

of all womanliness in education. The plan is to give *every* girl in a form a prize, if she reaches a certain standard, so that it is quite possible for every girl in the school to get a prize, provided she works fairly well and steadily. I consider that the giving of one prize for which the whole form are to compete is a most heartless and injurious system; for we all know how conscientiously girls work as a rule—ever so much more so than boys—and the excitement, anxiety, and therefore sleeplessness, with the many attendant evils, caused by keen competition, are enough to break most girls down altogether. Surely there is enough misery already extant, without our doing our best to manufacture more in our schools.—I remain, yours truly, A Worshipper of the Profession.

QUERIES AND ANSWERS.

GENERAL.

Loeflund & Co.—We are desired by this firm to state that they are Exhibitors in Class V., Group I. (No. 184), at the International Health Exhibition. In our notice last week of Messrs. Loeflund's preparations, for "maltine or dextrine" read *dextrine and maltose*, and for "strenuous affections" read *strumous* affections.

J. Boyd.—The model is in the Exhibition, we believe.

C. A.—A term implying "short-sightedness."

Bugler.—The average weight of the spleen is six ounces; length, about six inches; breadth, over three inches. It seems to be a blood-gland, and to be concerned in the elaboration of the blood-globules.

Intimo.—Dr. A. Wilson's "Health Manual" will be published by Messrs. Longmans & Co. Dr. G. Wilson's Manuals are published by Messrs. Churchill, and are in every sense most excellent works.

Alice Wentworth.—There are several examiners in the subject of Physiology (Animal). Professor Huxley, we believe, is the principal examiner.

George C.—We should prefer Bournemouth in a case such as that you describe.

Judex.—Read Dr. Crichton Brown's article carefully (see Health, Nos. 56 and 57).

Annoyed.—Unless you can amicably arrange with your neighbour, whose health-interests are identical with yours, we do not see what can be done.

Cosmos.—Our pages are not suited for such an article. Try *Knowledge* or *Science Gossip*.

Brixton.—MSS have been returned to you.

G. O.—Send your complaint direct to the publishers of the work. If the copy is imperfect, they will supply a new one.

Christian G.—1. Yes; by all means. 2. We do not know. 3. About two feet.

Andrew Whyte.—The method you inquire about is a "Patented" one.

A. W. Gore.—Thanks for cutting, but as we have already dealt with "Faith-healing," we think for the present it is better to leave the topic as it stands. If people will believe that "spinal curvature of the most fearful sort" (whatever the writer of the newspaper letter may mean by this expression) can be cured miraculously "in two or three weeks," he is very welcome to his belief—only, he will find few rational persons to agree with him, either in the belief that the case was one of spinal curvature (involving, remember, decay of bones), or that it was miraculously healed.

Joseph Walker.—You will be quite unable to study physiology in its more advanced stages at home. You should attend the nearest science college, and make use of the teaching and apparatus there. We do not think any one would lend the expensive apparatus required for physiological investigation on hire. The book you mean is by Daniell. It is published by Messrs. Macmillan & Co. Price 15s., we believe.

A. Williams.—Mivart's "Lessons in Elementary Anatomy" (Macmillan & Co.) should suit you, as it gives not merely the human muscular system, but also details of comparative anatomy as well. Gray's "Anatomy" (Longmans) deals with purely human anatomy.

SANITARY.

Alexander Birch.—Why not directly address the Vestry? They are bound to look after such details.

Bannockburn.—The first sample sent is impregnated with vegetable matter. On that account alone it is not necessarily a bad water, but it should be filtered at least, and a chemical analysis of its qualities obtained.

Tudor.—Either filter will suit you, so long as you attend to keeping it clean.

Robert X.—There must be some mistake. No sample was received on the date you name.

John Stirling.—See reply to "J. D." in Health No. 57. Either kind there named would suit your purpose.

MEDICAL.

C. Armytage.—You might possibly find relief by using one of Miss M'Mullin's Electro-Glacial Applicators. These give off strong electric currents, and can be had at 48, Hindon-street, London, S.W. Write there describing your case, and the proper form of Applicator will be sent you. In your case we should advise the diet to be nourishing, but not stimulating. An iron tonic (*e.g. Fer Bravais*, fifteen drops thrice daily in water) would assist your cure.

C. Roberts.—The person who sold you the "Restorer" is a quack pure and simple; and your money has therefore been spent unwisely. Why need you think you are ill at all? What you name is perfectly natural in most healthy persons. The curse of quackery is that it persuades persons like yourself that they are really ill, when they are really in ordinary health. Read and follow advice to "Glaucus," in Health No. 58. Above all, don't be morbid, and know that by attention to your general health you will soon regain vigour.

Mary May.—In your case we should strongly feel inclined to advise a change of air and cheerful society. You are evidently depressed from being so much alone; and this nervous depression reacts on your digestive system. The following may do good in correcting the acidity, &c.; and there is great necessity for rest after meals. Avoid suppers and stimulants as far as possible. Carbonate of ammonia, one drachm; bicarbonate of potass, a drachm and a half; infusion of chiretta, six ounces. To be labelled, "a tablespoonful thrice daily before food." Glad to be of any further service.

Mrs. Gerston.—Look to your stockings and to your boots. Possibly you suffer from some skin irritation, which may be induced by over-exertion or poisonous dyes in the stockings. Wash the feet thoroughly, and soak them daily in a solution of boracic acid, made by dissolving, say, one ounce of the acid in a quart of water. Apply pure Vaseline thereafter.

F. Marshall.—You are over-nervous, worried, and excited. We should recommend you to try to procure some light duty and rest as much as possible. Your case is quite a curable one, and the advice given to "Glaucus," in Health, No. 58, applies thereto. Rest, a tonic (such as that recommended to "J. W. Edwards" below), and a cheerful mind, with attention to ordinary health details, form the elements of your cure.

Anxiety.—1. Yes; when an aperient is required. "Æsculap" or "Hunyadi Janos" water might be substituted. 2. For corns, see to your boots, and after paring the corn and soaking the feet in hot water, paint the corn two or three times a day with liquor arsenicalis. (N.B.—Remember this is poisonous, and should be labelled "for external use only," and kept locked up.)

Enquirer.—We fear there is no cure. These appearances are often constitutional. Avoidance of chills and stimulants, mild diet, and general attention to health, form items worth remembrance.

J. W. Edwards.—The idea you mention is certainly a quack invention. The secretion is not what it is popularly supposed to be. The general advice we can give you as likely to benefit you is, firstly, to avoid constipation by taking a vegetable or fruit diet occasionally; secondly, try cold sponging each morning; thirdly, sleep on a hard mattress; fourthly, moderate outdoor exercise; fifthly, avoid fluids late at night; and, sixthly, take for a time a teaspoonful of Fellow's Syrup of the Hypophosphites thrice daily, an hour before meals, in a wine-glass of water.

Juno.—1. Not within certain reasonable limits; only quacks say otherwise. 2. Yes; certainly. 3. Depends on personal and individual constitution. 4. Readily supplied naturally. 5. Because any "excess," whether of muscle or brain, is injurious; and because a large amount of nerve force is expended.

D. Horne.—Take a fruit or vegetable diet occasionally, and let your diet continue to be light and nutritious. If not bettered, write again. See advice to "Reader of Health," in present number, in relation to parasites.

J. M. G.—You should certainly smoke less, as that practice may tend to increase your symptoms. We think your troubles are wholly dependent on feeble digestion. Rest after your food; and take Morson's Pepsine after your meals. Fruits and vegetables should also form part of your diet. If you are over-confined at your trade, you must arrange to take more open-air exercise.

S. Meunier.—We are of opinion that you should arrange for the patient to have a complete change of air. Try a week or two at Southport or Blackpool. Such symptoms usually arise from nervous debility, and a change of air will most probably act beneficially Ten drops *Fer Bravais* should also be given thrice daily in a little water. If not bettered, write again.

Draper.—We hardly understand what it is you now complain of. From your own account, you seem to have got rid of your former symptoms, and if we read your letter aright, you are now alarmed because these symptoms do not return. Our advice to you is not to think so much about your ailments; take plenty of open-air exercise, and occupy your mind with some healthy thoughts. Cold sponging each morning would act as a tonic to you, if you have sufficient reaction.

William M.—Don't eat late at night, and see to your digestion. A short walk before retiring to rest would be advisable in your case. If these hints do not relieve you, write more fully, and describe your symptoms.

George Amena.—We do not think there is the slightest connection between the cause you name and the affection of which you complain. Exercise strict cleanliness, and use the lotion recommended to "Catarina" in No. 58 Health. Let us hear how you progress.

Elliot Jones.—For the skin eruption, see advice given to "George Amena" above. Regarding the ear-trouble, we should advise you to see an ear-surgeon. These affections can frequently be cured with success by very simple means. We should advise you also to try the tonic recommended to "Plymouth," in No. 58 Health, as ear-affections often benefit from such remedies. Glad to be of any further service.

J. J. N.—Your best plan is to see a good surgeon, who will advise if anything can be done in the case of the deformity of which you complain. It is a case in which a surgeon alone can advise. Use tepid water and Pears' soap for the skin affection, and, after friction with a hard towel, sponge the part with a little vinegar. The skin ducts get filled up with oily matter—hence the appearance of "worms." Regarding the eyesight, spectacles are indicated in your case. Call on Mr. Browning, 63, Strand, W.C., who will suit you, after examination of the eyesight. We can send you address of a good London surgeon, if desired, on receipt of a stamped directed envelope.

Lara.—We agree with you that change or air and rest are indicated in your case. Your food should be very light, and you should rest after meals, especially, by way of avoiding any injurious excitement to the heart through indigestion. As a tonic, you might try ten drops *Fer Bravais* in water three times a day; but your case is not one for drugs—you must make rest and change of air your chief means of cure.

Builder.—Try the effect of taking (for a night or two) a powder consisting of fifteen grains bromide of potass, each alternate night, on going to bed. If this does not relieve you, let us know. Avoid constipation, as part of your cure.

Hilda Browne.—1. A dye for making the hair dark is composed of from ten to twenty grains acetate of lead dissolved in one ounce of water. When this is nearly dry, the hair is then wetted with sulphide of ammonium. We must warn you that this dye may prove dangerous if persisted in, and might give rise to symptoms of lead-poisoning. No ordinary dye is free from disadvantages. 2. The tonic you name is not adapted for indigestion. Try Morson's Pepsine, taken after food as directed on the bottle.

Phthisis.—Try the Clyde, which is very mild. Rothesay is the favourite place, and would probably suit you extremely well. If you can go south, try Bournemouth or the Isle of Wight. See our last year's articles on "Health Resorts."

Albus.—We do not think your idea of "strain" is at all a feasible one. We think it more probable that you are suffering from dyspepsia, and from some error in diet. Our idea is that you should first try fresh air, and a change to the seaside or country for a time; and take a teaspoonful of Fellows' Syrup of the Hypophosphites in a wine-glass of water thrice daily an hour before meals. Let us hear how you are after a short trial of this advice. Food to be light and nutritious, and rest after meals, as well as avoidance of all exertion, will aid your cure. If you smoke, be extremely moderate.

Antediluvian.—Thanks for your sensible letter. As you see clearly enough, there is no actual disease (only a little functional weakness). We need not tell you that yours is not a case for medicine at all, but one simply for strong mental exercise and self-control. You should continue the cold sponging each morning, and sleep on a hard mattress. See also to the ventilation of your bedroom, and avoid suppers and fluids late at night. Take fifteen or twenty grains bromide of potass in a wineglassful of water each alternate night for a week or so. This will probably effect a cure. You need have no fears; you are perfectly healthy, and all will come right by attention to ordinary health-details.

Sansdieurien.—Take the tonic recommended to "Albus" above for a time. Clothe warmly; food to be light and nutritious; cold sponging is good, but only if you have sufficient reaction. The circular you enclose is that of a quack medicine.

Reader of "Health", (will please adopt a more distinctive name in future).—You can tell only by watching to see if any joints of the worm escape from the digestive system.

Peccavi.—The tonic should be taken an hour before meals in water—not "at meals," as you put it in your letter. Your cure must be largely mental. Attend to your general health, and you will outgrow your diffidence. Mix freely in society, and cultivate self-reliance.

Gaboon.—Try bathing the feet in tepid salt water; use Tidman's Sea Salt in the bath. The feeling is probably due to over-exertion. You simply require additional rest. Give this advice a trial; if not bettered write again.

A. R. G.—We think your case is simply one of extreme nervousness, induced by the worry to which you refer. A thorough medical examination would be the surest way of relieving your mind. If you will send us a stamped addressed envelope we can give you the address of a reliable London physician who will examine you, and advise you as to treatment. So far as we see there is no cause for alarm in your case; but a consultation would relieve your anxiety and worry. The "instrumental cure" you speak of has no relation whatever to your case.

J. P. T.—You are very foolish to be so much perturbed by the fact that you are given to blushing. Be more robust in your mind. Your general health is a little low apparently. Try the tonic recommended to "Albus" in present number of Health for a short time. This will probably brace you up and cure your nervousness.

Diamond.—Avoid the use of vegetables in any form; give up tea and coffee, and try milk instead; rest after food especially; and have a little pepsine with the meals. Let us hear how this advice affects you. You must be particular in following out these simple details.

P.—Try the lotion recommended to "Catarina" in Health, No. 58. See that your digestion is in good order; such troubles often arise from indigestion. If not cured, write again. Avoid all stimulants, tea and coffee, and rich foods.

Total Abstainer.—We prefer Feltoe's Specialité Lime Juice, to be had of all chemists. It is thoroughly pure, does not turn mouldy, and is a pleasant beverage alone or diluted with water. For the hay asthma, try Dunbar's Alkaram.

Marjoribanks.—Use the lotion recommended, and follow advice given to, "P." above. Lime juice (see reply to "Total Abstainer" above) acts as an anti-scorbutic and general blood purifier.

Walter Bridges.—See advice regarding corns given to "Anxiety" in present number of Health.

W. F. D.—1. No; not if there is sufficient reaction and warmth after friction with a bath-towel. 2. No. 3. We should not recommend you to wet your head at all in the bath. A cold sponge bath does good without the head being wetted. The latter practice often causes headaches. 4. A few minutes, at most; sufficient to give yourself a rapid sponging all over the body. 5. Meals should be taken regularly, and you should rest after meals, otherwise you will certainly suffer from indigestion. A man in good health and with plenty of food need not fly to the "raisin" idea at all.

Grey at Thirty.—We do not know the composition of the "Hair Restorer you mention. If it merely contains "petroleum," you would probably get the same effect from the use of Vaseline. We are always suspicious of "restorers," many of which contain lead.

Nomen.—1. No such condition is known. "Too much blood" is a popular expression for conditions which depend on nervous irregularities affecting the circulation. 2. No foods have such peculiarities—blood-making depends on digestive power as well as on the quality of the food. 3. Try the tonic recommended to "Albus" in present number. 4. From eight to nine hours in each case. 5. Depends on the nature of the meat and fish respectively. Fish varies much in nutritive qualities.

Anxious.—Try the Hair Tonic mentioned in Health, No. 52, page 425. If not bettered, write again. Use a soft brush, and wash the head once weekly with tepid soft water and Terebene Soap.

B. P.—What was said to "Procrastination," in Health, No. 58, applies to your case. Your cure should be as much mental as physical. Don't allow any one to persuade you that you are ill. See and follow advice there given; the tonic recommended therein (to "S. O. D.") should also be tried.

Sciatica.—Have you ever had any electrical applications tried in your case? Under proper medical advice, they are likely to be of service to you. The tonic recommended to "Albus" in present number of Health should be tried by you. We have known it to be of much service in cases like yours. Glad to be of any further assistance.

Stoke.—If you will forward the so-called electric or magnetic appliance (enclosing stamps for its return), we will be glad to tell you whether it is a genuine appliance or not.

Foolish Girl.—For indigestion, see advice to "Sandmere," in

[*Continued on page* 112.

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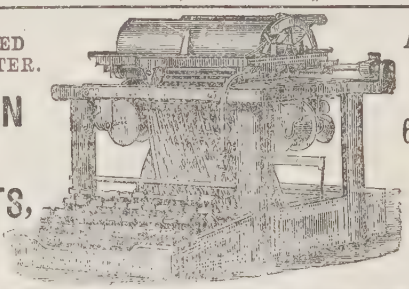

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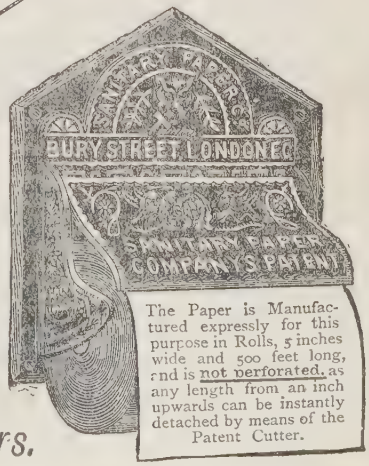
"As the result of a most careful examination we are enabled to state that this Paper contains nothing whatever of a deleterious or injurious nature, it is, in fact, of GREAT PURITY, and altogether suitable for the purpose to which it is intended to be applied."

(*Signed*) A. H. HASSALL, M.D. Lon.
E. G. CLAYTON, F.C.S.



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Health No. 58. Write again if not better. A little Pepsine should be taken after meals twice a day.

Norman.—The poor child is evidently suffering from nervousness and dreaming, the result, no doubt, of the nurse's injudicious (and cruel) treatment. We should think that you might endeavour to try what the administration of bromide of potass would do. Purchase Mr. Davies' "Nursery Hints" (1s.), published by Chatto & Windus, Piccadilly, W., and see what is said therein (page 48) about the "sleep" of children, and the use of bromide of potass in sleeplessness. If you are not satisfied after trial of this advice, we can send you, on receipt of stamped addressed envelope, the address of a London physician, who makes children's complaints a speciality. Mr. Davies' book was reviewed in Health No. 56.

Loisette.—1. We can hardly answer your question. One system of "memory" may not, and certainly will not, suit every one, and no such system can be acquired without "brain work," as you term it. No memory-system will teach you "never to forget anything"—all human institutions are fallible and liable to defects. The system you inquire about is a good one; we cannot say more. 2. Use hair-lotion recommended to "Semaj" in Health No. 58. 3. Wash the feet frequently in tepid water in which a little boracic acid has been dissolved.

N. Q. R.—You did not enclose any pamphlet in your letter. Æsculap or Hunyadi Janos would suit you as regards your liver disturbance. See and follow advice given to "Sandmere" in Health No. 58. You should take also Pepsine with your meals, and try the effect of vegetables and fruits as part of your dietary, so as to avoid the use of aperients. Edward's Revelenta is remarkably nourishing. Avoid suppers, and rest after food.

Kate Hicklenton.—Many thanks for your letter. Such cases prove that the inheritance of artificial deformities is a fact of both human and lower life.

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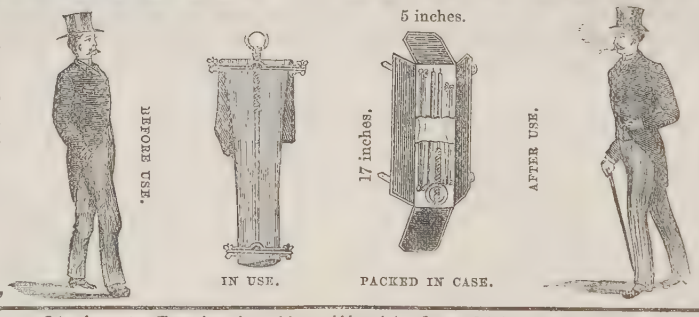

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HEALTH

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, MAY* 30, 1884.

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Notes by the Way

"Health is the foundation of all our physical happiness."—*Herder.*

THE topic of the week is the announcement that M. Pasteur has apparently brought his researches into the nature of *rabies* in the dog to a practical end. "Rabies," as our readers know, is the canine disease which produces "hydrophobia" in man. Experimenting with the poison-matter of rabies, M. Pasteur has found that, transmitted through a series of rabbits, the poison becomes greatly intensified in power. An original rabbit inoculated direct from a rabid dog is used, in turn, to infect others. These, again, are made the means of infecting further rabbits; and thus the poison, primarily derived from the dog, is "cultivated" in the rabbit-nature, with the result just noted—that of finding that the virus becomes more deadly. A second experiment gave an opposite result. From the brain of the dog which had died of madness poison-matter was obtained. This virus was used to infect an ape, which, in due course, perished of rabies. Other two monkeys were inoculated in succession from the dead ape, until a comparatively harmless poison was obtained. This harmless virus was next used on four rabbits successively, until a poison of intense strength and activity was produced. By such cultivations, M. Pasteur seems to have proved the possibility of producing a strong or a feeble form of the rabies-poison at will.

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THESE experiments have not, however, shown the true nature of the rabies-poison. Whether it is organic, that is living, or germ-like in its nature, or whether it exists as a chemical principle, remains for future discovery. We must not be impatient in our demands. It is something, at least, to have discovered, that just as the *bacillus* or germ of the splenic fever may be cultivated in a mild and protective form, so the poison of rabies may be manipulated until it can be made to lose its fatal powers, and to exchange these for a modified intensity. The practical outcome of the experiments on rabies points to the same end as those made on the splenic fever of cattle. As the latter are protected from this fever by inoculation with the mild or cultivated virus, so M. Pasteur holds he can protect the dog by inoculation with modified rabies-poison, against the bite of a mad companion. He has arranged for experimental proof of his allegations and beliefs; and in the interests, no less of suffering canine nature, than of science, it is to be hoped he may be successful. Something more remains to come, however, as the result of these experiments. If M. Pasteur's experiments are successfully carried out, we may be hopeful that rabies in the dog may become extinct, or so far modified that its resulting human hydrophobia may no longer be a dread and terror of our race.

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A CASE of high practical and public interest from a sanitary point of view was tried in London before Mr. Justice Field last week. It appears that Lady Greville agreed to rent a London house, but on inspecting the house saw a child ill in the night nursery, and afterwards ascertained that the little patient was suffering from measles. Thereupon, although the agreement had been signed, Lady Greville refused to inhabit the house, and the action was brought by the proprietor to recover the rent alleged to be due to him under the agreement in question. Medical evidence was called for and against the plaintiff, the most sensible and scientific part of this testimony being undoubtedly that which maintained that the room should have been fumigated, the carpet beaten (purified?) or destroyed, and the room re-painted, re-papered, and whitewashed. This sounds sensible advice, we repeat, compared with that given for the plaintiff, namely that cleansing the nursery, washing the carpet with Condy's fluid, and sending away the child's cot and bedding were sufficient precautions. Lady Greville, we are of opinion, acted in perfect good faith when she refused to allow her children to risk infection. It appeared, also, that the fact of the child's suffering from measles was concealed when the child was first seen by the defendant. Judgment was given for the defendant with costs. Such a decision, we trust, will settle once and for all the contention that no house containing any person suffering from infectious disease should be let without the proposed tenant being duly informed of the fact. In the latter case, with a knowledge of the fact before him, and should he accept the responsibility of tenancy, he can take full and complete measures for the effectual disinfection of the premises.

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MR. SEYMOUR HADEN'S protest against cremation, to which we made allusion last week, called forth two very satisfactory letters in reply. One of these, written to the *Lancet* by the Rev. Brooke Lambert, Vicar of Greenwich, tells of cemetery "earth," which, instead of being adapted to act as Mr. Haden expects it to do in decomposing the dead body silently and effectively, consists (as at Nunhead) of "masses of clay, hard and stiff," or of material resembling rock. It is clear that with cemeteries, constructed as they are to receive bodies for interment in all kinds of soils—good, bad, and indifferent—and without relation to the easy decomposition Mr. Haden speaks of, the less said about the easy practical adoption of the "earth to earth" system the better.

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ONE of Mr. Haden's arguments, namely, that the greater production of gases in cremation, as compared with their gradual production in burial, would constitute on any one day a danger of moment in connection with the process of incineration, has also been disposed of both by Mr. Lambert and by Mr. A. H. Hastie. The same amount of gas is practically given off in cremation as in burial; what each cremated body gives off on one day (and one day only, of course), a buried body will give off for each of the many days (say 1,000) during which it is being resolved in the earth.

All who wish for a clear, interesting, and thoroughly fair statement of the arguments for cremation should purchase the pamphlet issued by Messrs. Smith, Elder, & Co., and containing Sir Henry Thompson's articles, originally contributed to the *Contemporary Review*. The recent judgment of Mr. Justice Stephen in the "Welsh Cremation Case," and correspondence between the Cremation Society and Government, are also included in this pamphlet. It may be well to add that the address of the "Cremation Society of England," is 11, Argyll-street, Regent-street, London, W.; Mr. Eassie being the Honorary Secretary of the Society.

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The *Philanthropic Guardian* has a highly sensible article on "Intemperance and Adulteration," in which it contends that a fertile cause of drunkenness is the bad quality of the liquor consumed. There is great truth in this observation. We have known cases in which the consumption of even a small quantity of spirits — and certainly by no means enough to have produced drunkenness had the liquor been pure — gave rise to intense mental excitement, followed by symptoms allied to those of irritant poisoning. There is no doubt that the poor especially are very liable to be supplied with "hocussed" drink; and the taste for a strong "dram" leads the publican to supply an article which, in its fiery rawness, is really unfit for consumption.

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Our contemporary alludes to the answer so frequently given in cases of drunkenness, that the subject had taken "only one pint of beer." This may be literally true, and if the beer or other liquor has been adulterated, there can be little wonder that the spectacle of the drunken man should present itself to view under the idea of the "poisoned" or "hocussed" individual. One thing, at least, is clear—namely, that if liquor is to be consumed at all, it should be good and unadulterated. The profits of the publicans are surely large enough to enable them invariably to sell a pure article.

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Professor Virchow, of Berlin, recently exhibited to the Medical Society of that city, the photograph of a huge plane tree growing in the little island of Cos, in the Grecian Archipelago. The interest attaching to this tree and to its island arises from the fact that Hippocrates, "the father of medicine," dwelt in Cos; and, it is alleged, held consultations under the shade of the tree. The tree stands in the market-place of the town of Cos; its huge branches being supported by marble pillars. The tree has thus become elaborated, so to speak, into a veritable shrine of Hygeia; and it would certainly lay claim to the veneration of the world, could the fact of its having formed the temple of Hippocrates be fully substantiated. "The father of medicine" was born in Cos about 460 B.C.; and tradition credits him with being seventeenth in descent from Æsculapius himself.

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As regards the age of trees — a topic raised by the preceding note—De Candolle, the famous botanist, gave the age of an elm at 335 years. The age of some palms was set down at from 600 to 700 years; while that of an olive was given as 700 years, of a plane at 720, of a cedar at 800, of an oak at 1,500, of a yew at 2,880, of a taxodium at 4,000, and of a baobab tree at 5,000 years. The purely vegetative life, free from the higher nervous powers and worries of the animal, thus appears to flourish well-nigh indefinitely as regards age.

Original Essays

"Life is not to live, but to be well."—*Martial.*

SOME TRICKS OF MEMORY.

By Dr. Andrew Wilson.

Like every other faculty of mind and brain, memory is subject to modification. The elasticity of life is nowhere seen better exemplified than in the variations to which our mental powers are subject. The very cultivation of memory, and the power we possess, within the limits of our individual constitutions, of improving its scope and enlarging its sphere of action, is a proof of the elasticity and adaptability to which we refer. Naturally, every alteration of memory, or of any other function, does not necessarily tend towards improvement and progress. Backsliding and retrogression are as much facts of existence as are advance and progression. Organs and functions degenerate through the action of disuse or other conditions, and the laws of degeneration are, in truth, as powerful in effecting change in living beings as are the laws which govern progress. In the matter of memory, the law of disuse holds good to an extent which is popularly well-known as of very wide and extensive kind. The want of exercise of the recollective powers is probably the most common cause of the "bad memories" of which we have so much complaint. A very common case of memory proving a troublesome mental feature, is that seen in the case of a person who in business and occupation has required from day to day for years to exercise his memory over a certain specified and limited set of details. In handling these details, his memory is clear, active, and energetic. But, set down to a different class of facts, and required to exercise his recollective powers over new and unaccustomed ideas, he fails miserably, and at once rushes illogically to the conclusion that he possesses a memory of weak and ineffective kind.

The truth lies in quite a different direction. He illustrates, in himself, a modified memory. His mental powers have become specially adapted, during the years of business, to the requirements of his surroundings. He has no more need to feel surprised that his memory fails him for a new series of facts than in finding that, if bred, say, to watch-making, he should discover the details of tailoring beyond his powers. The majority of us cultivate special memories after all. It is rare, as a matter of common experience, to meet with a person who possesses a memory serviceable for every detail of life. One man recollects faces, but cannot recall names; another remembers names, but has no memory for faces. In schools, we see one boy or girl with a prodigious memory for routine work, such as historical dates; while another pupil, a dullard as regards dates, possesses a capital memory for long, connected recitations. One person is a perfect walking index to books, and to the source of facts, &c., he has read or heard of; another, helpless as regards this latter power, can cheerfully and easily give a connected account of many details forming a consecutive series. The memory-constitution varies with the individual constitution; and it would be more than strange if this were not so. That which memory-culture should tend to induce, is the production of those modifications in individual memories which will bring to the front the special qualities in which the recollective powers are deficient. It is arrant nonsense to assert that individuals may exist in a state of healthy vigour and freedom from brain disease, and who yet possess no memory powers whatever. Every sane individual possesses a memory, with special proclivities and qualities. Each of us can, by

nature, remember certain facts or details better than others. What is wanted, we repeat, in the mental history, is the culture of those powers of memory for which we know we have least aptitude, and which we have least inclination to exert.

Among the "tricks" which memory may play us, none are more interesting than those which relate to the dim consciousness, often present to most persons, of having beheld somewhere or other, at some previous period of life, a scene which is otherwise known or believed to be entirely new. Professor Henry F. Osborn, in *Science*, writes as follows of this well-known mental process:—"For some time past, I have been investigating a curious psychical or psycho-pathological experience which is alluded to by many writers upon psychology, and is not infrequently met with in general literature. It is that vague sentiment of familiarity we sometimes have upon entering a new experience, best expressed in the words, 'I have seen or known all this before.' It has been explained by various writers, upon two widely different theories. The first is that this 'double perception,' 'double thinking,' 'double presentation,' as it has been variously named, arises from the dual structure of the brain,* resulting in cases of imperfectly correlated action in two images or impressions not absolutely simultaneous: the latter, therefore, is a repetition of the former, and gives rise to a sentiment that it has passed through the mind at some indefinite previous time. This theory, it will be observed, is a physiological one. The other theory is, that the phenomenon is a purely psychical one; that the false or illusory memory has a real basis in some actual past presentation which is identical, or closely similar, with the present one, or in some past images of the walking imagination, or dream-life; that, although these cannot be recalled into consciousness, they are sufficient to give us the conviction that the present event is the repetition of a former one—why, or how, we do not know. There are several cases upon record, where this sentiment has assumed a pathological character, and become a continual delusion, attending every experience.

"Two years ago, in the hope of obtaining more information, I distributed a question upon the subject among a large number of persons, principally college students. It may now be given in somewhat amplified form, as follows:—'Have you come suddenly upon an entirely new scene, and, while certain of its novelty, felt inwardly that you have seen it before—with a conviction that you were revisiting a dimly familiar locality? Mention, if you can, an instance or two in which this has occurred. Has any satisfactory explanation of this experience ever suggested itself to you? How frequent is the experience in your case? Was it more frequent in childhood than at present? How soon do you usually become conscious of the deception? Does it occur more frequently in connection with some kinds of experience than with others?'"

These questions and their full and intelligent considerations naturally suggest the means for arriving (if exact deductions from facts be possible) at an interesting speculation regarding many phases of brain action. That Plato was familiar with the experience to which Mr. Osborn alludes is evident. He even conceived that such ideas gave support to the theory of a state of pre-existence, in which the individual was of course supposed to have seen or heard the details which strike him as being familiar. It has been suggested that just as we received from our ancestors their physical features of body, face, &c., so we must inherit their memory-experiences as well. The "consciousness" of the past, in this latter view, is transmitted onwards to the present, and reappears perpetuated in the dim, ill-defined feelings above alluded to. On this theory, it is suggested that what a person may have seen or heard, and what has impressed him strongly, may be transmitted to his descendants as an inherited memory. Mr. Sully, indeed, in speaking of such "illusions" of memory as they have been named, suggests that a practical test of this ancestral and inherited theory would be that of discovering whether, in the children of seafaring men, brought up inland, there appeared to be any recollection of having seen the ocean before when they were first brought face to face with the sea. Another writer suggests that the dim ideas or illusions in question are the reflections of dreams, but a critic remarks that dreams, too, may be a matter of inheritance. Lewes and Ribot tell us that such illusions are due to the false placing or location of a *present* mental image or idea. Properly placed in the brain centres, it would give the consciousness of a present idea or image not before seen or heard. Erroneously located, the idea gives rise to a false recollection, and thus originates the dim illusion of a previous knowledge of the scene or words.

Perhaps a distinct theory of these "memory illusions" is at present impossible of construction. But the enumeration of well-verified cases of such "illusions" is a necessary step to their full investigation. In his "Intellectual Powers," for example, Dr. Abercrombie tells us of the case of a lady, who, in the last stage of chronic disease, was taken from London to the country. Her infant daughter was taken to her there, and, after a short interview, was carried back to town. The lady died in a few days thereafter; the daughter growing up to mature age without possessing any recollection of her mother. On being taken into the room in which her mother died, and without being informed of the fact, she started, and was visibly affected; and, in answer to a friend's inquiries, said, "I have a distinct impression of having been in this room before, and that a lady, who lay in that corner, and seemed very ill, leant over me and wept."

Here there was clearly the reproduction—by the stimulation of the surroundings of the room—of ideas which, very early in the individual-history, had become impressed in the nerve-centres. But for the known facts of the case, this incident would have been described as a memory "illusion."

* Mr. Osborn is doubtless here referring to the fact that the brain is a two-sided organ, divided into two distinct, yet connected halves, each of which exercises control over the opposite half of the body.

PUBLIC PARKS AND OPEN SPACES.

By George Howell, F.S.S.

THIRD PAPER.

The continual encroachments on the rights of common began at last to evoke strong expressions of disapproval; and, in some instances, physical force was resorted to in order to prevent inclosure, whilst in others the fences erected were torn down and removed, or burnt. Litigation followed with varying success, but eventually the practice of inclosure received a check. In 1865 the Commons Preservation Society was started, from which date but few inclosures have been attempted without a protest of some kind being made, and often the question has been stubbornly contested in courts of law. In February, 1865, a Select Committee of the House of Commons was appointed "to inquire into the best means of preserving for the public use the forests, commons, and open spaces in and around the Metropolis." By this Committee two reports were made, one being presented in April and the other in June,

of the same year, and ordered to be printed by the House. In the following year (1866), the "Metropolitan Commons Act," 29 & 30 Victoria, c. 122, was passed, by which statute all commons within the Metropolitan police district are exempted from the operation of the General Inclosure Act, 1845, and its amending Acts. In the same year some further schemes of inclosure, approved by the Commissioners, were thwarted by the resolute action of the late John Stuart Mill, Professor Fawcett, and a few other men in the House of Commons, and Parliament refused its sanction to the measure proposed.

By the Act of 1866, the Metropolitan Board of Works is constituted the Local Authority, and the expenses of management have to be defrayed out of "the rate leviable for defraying the expenses of the Board in the execution of 'The Metropolis Management Act, 1855,' and the Acts amending the same," if the common is situate wholly or in part within the Metropolitan area, as defined by the latter statute. If the common is situate wholly or in part within a district governed by a Local Board, constituted under "The Public Health Act, 1848," and the Local Government Act, 1858, or one of them, and no part is within the Metropolitan boundary as defined by the Metropolis Management Act, then the Local Board of such district is to be the Local Authority, and the local rate is to be the general district rate. As to any other Metropolitan common, the Local Authority is to be the vestry of the parish in which the common or any part thereof is situate, and the local rate for the maintenance thereof is to be the poor-rate. The tendency to inclose commons and open spaces, though checked by the action of the Commons Preservation Society and by the legislation above referred to, was not altogether prevented; nor, indeed, were illegal encroachments put a stop to. In 1869 the Inclosure Bill of that year sanctioned the inclosure of 6,900 acres of common land in various parts of the country, only *three* acres of which being reserved as recreation grounds for the use of the public, and *six* acres as allotment gardens for the labouring poor. Fortunately its progress was stopped by the persistent action in Parliament of Professor Fawcett, M.P., the present Postmaster-General, and a few others, who resolutely resisted further inclosures in the manner sought by the Bill. In the same year was passed the Metropolitan Commons Act Amendment Act, Provisional Orders, the 32 and 33 Victoria, c. 107, which amended and extended the provisions of the Metropolitan Commons Act, 1866; and rendered it more difficult to obtain the sanction of Parliament to the indiscriminate inclosure of common lands in any part of the country.

From 1869 to 1876 every attempted inclosure of common lands was energetically opposed by the Commons Preservation Society or by some local body interested in the frustration of such objects or schemes; and sometimes by the united action of both, when deemed advisable. If not always successful, the efforts made in this direction have conferred immense benefits on the community by making inclosures of all kinds most difficult, and in many cases impossible. But the greatest achievement, as the result of such action, was the passing, in 1876, of the 39 & 40 Victoria, c. 56, "An Act for facilitating the Regulation and Improvement of Commons, and for Amending the Acts relating to the Inclosure of Commons" — the provisions of which extend to the entire country. This statute enacts that suburban commons, situate either wholly or in part within six miles of a town, may be acquired and regulated by the local authority of the district, instead of being inclosed under the Inclosure Acts. Provision is also made therein as to public allotments, for preventing encroachments on village greens, and for obtaining an injunction against illegal inclosures from the County Courts, subject to appeal to the High Court of Justice. Those Acts have been further amended and extended by the 40 & 41 Victoria, c. 35, 1877, an Act for affording facilities for the acquisition by the public of open spaces for the benefit of the inhabitants, by which the Metropolitan Board of Works is authorised to acquire and hold open spaces, such as gardens and squares, and for that purpose applies the Metropolis Management Act, 1855—the 18 & 19 Victoria, c. 12—thereto. The Metropolitan Commons Act, 1878, the 41 & 42 Victoria, c. 71, gives to the Board power to purchase and hold, with a view to prevent the extinction of the rights of common, any saleable rights in common, or any tenement of a commoner to which rights are annexed; and the 41 & 42 Victoria, c. 56, same year (1878) amended the law as regards the expense of regulating commons, under the title of "Inclosure, Provisional Orders." The year following, 1879, an Act was passed—the 42 & 43 Victoria, c. 37 — to amend the Commons Act, 1876, relating to inclosures and recreation grounds; and in 1881 "The Metropolitan Open Spaces Act" was passed — the 44 & 45 Victoria, c. 34 — extending the operation of the Act of 1877, under the same title, and including within the jurisdiction of the Board disused burial-grounds, which open spaces may be transferred to the Board, or to any vestry or district board, for the use and benefit of the public.

The more general Acts relating to recreation grounds are Mr. Slaney's "Recreation Grounds' Act, 1859," the 22 Victoria, c. 27, which enabled grants of land to be made to trustees, "to be held by them as open public grounds for the resort and recreation of adults, and as playgrounds for children and youth, or either of such purposes," without being subject to the provisions of the Charitable Trusts' Act; and also empowering bequests not exceeding £1,000 to be made "for the purpose of defraying the expenses of purchasing, preparing, maintaining, and preserving such grounds for the purposes aforesaid, and ornamenting the same." This was followed by another Act, under the title of Public Improvements, Recreation Grounds, the 23 & 24 Victoria, c. 30, 1860, to enable a majority of two-thirds of the ratepayers of any parish or district, duly assembled, to rate their district in aid of public improvements for general benefit within their district." Though narrower in its scope than its title would seem to indicate, it empowers the aforesaid majority of ratepayers, in parishes of more than 500 inhabitants, to purchase or lease lands, and accept gifts and grants thereof "for the purpose of forming any public walk, exercise or playground," and to rate themselves to the extent of, but not exceeding, sixpence in the pound (but only where one-half the estimated cost of the proposed improvement has

A Valuable Invention.—It is gratifying to learn that Mr. R. Adams, of 17, Blackman-street, London, S.E., whose fanlight-openers and silent door-springs are being extensively used, has received large orders for his Patent Reversible Window. The sashes, although they slide up and down in the usual way, can be instantly turned inside out, enabling anyone to clean each side of the glass with ease, while standing in the room.—[Advt.]

Scott's Midlothian Oat-Flour.—Messrs. A. & R. Scott, of Kingston, Glasgow, and Finsbury-square, London, have prepared a singularly pure and nutritious "Oat-flour," which bids fair to take high rank among the food products which are specially adapted for infants and invalids, and for the use of dyspeptics in particular, whose digestion is weak, and whose stomachs refuse to assimilate foods of ordinary kind.—Ed. Health.—[Advt.]

been subscribed) for maintaining and "improving any such open walk or footpath, or placing convenient seats, or shelters from rain, and for other purposes of a similar nature." This Act is still in force, and occasionally we hear of efforts being made to apply its provisions to a particular locality, where the need is felt for a breathing ground for its population. The Act of 1859 applies to England and Ireland respectively, while that of 1860 appears to apply to the whole of the United Kingdom. As regards England the law was amended and extended by the 34 & 35 Victoria, c. 70—the Local Government Board Act—under the Provisional Orders of which the authority previously vested in a Secretary of State was transferred to the Local Government Board. The law as to Scotland is further amended by the 30 & 31 Victoria, c. 101, sec. 58—Public Health Act (Scotland), 1867.

In addition to the foregoing there are a number of specific and private acts of a kindred character, relating to particular towns and localities; but the major portion of them relate to the metropolitan district, with its vast population of close upon *four millions* of inhabitants. Before referring to these special Acts, it may be desirable to say a word or two with respect to certain parks not specifically, though incidentally, the subject of legislation, but which are essentially public parks, situate in or near London, and belonging to the nation. They are termed Royal Parks, most of them being formerly part of the Crown lands, and at one time constituting a portion of the hereditary revenues of the sovereign.

Vignal (*Le Prog. Med.*, No. 18, 1883) finds that the germ of consumption resists putrefaction for eighteen days.

The French Anti-Tobacco Society.—This society offers for competition this year a series of premiums varying from 100 f. to 300 f., in addition to further prizes of medals and diplomas for the best essays against the use of tobacco. The essays, which are to be written in English, French, or German, are to be sent to the President of the Society, 38, Rue Jacob, Paris, from whom further particulars may be obtained.

In hay-fever, the food should be nutritious and easily digestible. Owing to the depression which the complaint causes, stimulants are sometimes necessary; but they should, if possible, be avoided, or only taken in small quantities. Light claret, hock, and whisky diluted with water, are the least injurious. Tea and coffee have a special value in the asthmatic form of the disease, both in relieving the spasm and counteracting the exhaustion which follows it.

Dr. Louis Fitzpatrick says that he has never seen a single instance in which a stye continued to develop after the following treatment had been resorted to:—The lids should be held apart by the thumb and index finger of the left hand, or a lid retractor, if such be at hand, while the tincture of iodine is painted over the inflamed papillæ with a fine camel's hair pencil. The lids should not be allowed to come in contact until the part touched is dry. A few such applications in twenty-four hours are sufficient.

Scott's Midlothian Oat-Flour.—There is no preparation which can be assimilated with greater facility than such a flour as this. Those who suffer from indigestion might substitute for their ordinary breakfast materials this flour, prepared according to the recipe given by Messrs. Scott and printed on the tins.—Ed. Health.—[Advt.]

The "Boncontour" Stay-Belt and other Orthopædic Apparatus, made by K. R. Schramm, Orthopædic Mechanician, 64, Belmont-street, Chalk Farm-road, London, N.W.—[Advt.]

Hospitals and Hospital Work.

"Heal the Sick."

IN A GREAT TOWN HOSPITAL.

By Lady Verney.

The presence of child-patients in a ward is extremely beneficial; the men scruple at using bad words or swearing before them, and it brings out the best and kindest parts of their nature. In the wards where they are to be found the men are always more civilised and better conducted.

There is an open time after tea, when the patients are allowed to do what they please. Music is the great distraction. When a nurse is there and can persuade one performer to sing at a time, and the rest to join in chorus, the effect is very tolerable; but when each man sings his own words to his own tune, and when the triangle, the penny whistle, and the jews-harp—the only instruments allowed—all take their own lines, the uproar of discord is tremendous; the pleasure in mere noise is evidently great after the enforced quiet of so many hours, and it must be remembered that many of the patients are lads under twenty. There are, however, more sedate pastimes—drafts, dominoes, and illustrated papers.

These are a few cases only among the thousands of sufferers. The manner in which the human atoms rise into the full light of hospital publicity, and are helped in all the ways that skill and kindness can suggest, and then disappear for ever in the great seething ocean of life, into an oblivion as complete as that of death itself, is, however, very sad; not one in four or five hundred is ever heard of again. A few return on the visiting days to see their friends and thank the nurse or doctor, but the population inside and outside the hospital changes so rapidly that their visits soon cease.

The hospital itself, however, is anything but a sad place. On the women's side those who are married hanker after their children and their wretched homes, but the men are less troubled by sentimental regrets, and are extremely "jolly." They are mostly better off than they have ever been in their lives in material comforts; they have what is to them very agreeable society and a good deal of amusement; the nurses are cheerful, and low spirits are not the distinguishing feature of young doctors.

The immense change which a greater knowledge of the human frame has brought about in medical treatment has entirely altered the status of nurses; they must be sufficiently trained to carry out the orders of the doctors now, when the mere swallowing of drugs has become a small part of the cure. External applications have taken the place of the old practice; bleeding* and blistering are almost unknown. The use of the microscope, of the stethoscope, the taking of the temperature, are all discoveries of the last score of years. The idea of assisting nature to restore health has taken the field, conservative surgery has become the rule, and the value of good nursing has accordingly risen in proportion. "This is a case for the nurse," says the doctor continually, especially in medical cases, after giving his orders, which only an intelligent person on the spot, trained for the purpose to understand what is before her eyes, could see carried out pro-

* It is told of a country practitioner of the last generation that he said to his assistant, "If you are called in during my absence and don't know what to do, bleed." In letters of the seventeenth century bleeding is prescribed for everything—sore eyes, dyspepsia, even small-pox.

perly. "To put in practice the instructions she receives according to the changing exigencies at the moment of the sick person" is no light task.

The hospital is a charitable institution which may be said to do more good and less harm than any other. It does not pauperise, and gives help at the most critical moment to the sufferers. It is essentially Christian; there is no trace of anything of the kind in the ancient religions. Hospitals for cats and monkeys existed in Egypt and India, but it was as sacred characters, sick divinities, that they were well treated, not as fellow-creatures. It was not till Christianity taught the world the value of the individual human life, even when distorted and degraded by disease and misery, that such institutions became possible. It is the more to be regretted when we hear of any shortcomings in "Hospital Saturdays" and Sundays, and that the working classes do not take more interest in assisting the cause. Perhaps, if they could have some share of representation on the governing bodies of the hospitals, this at least might be to some degree remedied. The cause is their own, it is for their own benefit, as they are strangely slow to perceive. The balance-sheets of some of the unendowed hospitals are somewhat sad reading. In one case £20,000 was asked for to conduct the work, which there is small chance of raising; and smaller institutions require far larger subsidies than they can get. A wider field from which to draw their resources would greatly assist the harvest necessary for the full development of the most useful of charities.

Probably also some small payments should be exacted from many who are perfectly able to contribute, for assistance which they receive at present *in formâ pauperis*—an amputation which they would resent greatly in any other connection. To receive charity, in short, when they ought to provide the help for themselves, is to prevent those in real destitution from obtaining as much of the benefits of the institution as they would otherwise do. Many beds are left vacant in several of the best of the hospitals because the funds are not sufficient to support the expense of them, which is indeed a sorry sight for those who care for their kind.—*Macmillan's Magazine.*

An Aid to Curing Drunkenness.—We believe the best authorities are generally sceptical as to there being any cure for confirmed habits of inebriety unless the effort in that direction be aided by a strong exercise of the will of the unfortunate subject of the bad habit. There are, however, many remedies recommended as aids in diverting or in a minor degree satisfying the appetite for strong liquors, which are undoubtedly of great advantage in some cases, and one of these is thus recommended by a self-styled "rescued man": "I was one of those unfortunates given to strong drink. When I left it off I felt a horrid want of something I must have or go distracted. I could neither eat, work, nor sleep. Explaining my affliction to a man of much education and experience, he advised me to make a decoction of ground quassia, a half ounce steeped in a pint of vinegar, and to put about a small teaspoonful of it in a little water, and to drink it down every time the liquor thirst came on me violent. I satisfied the cravings, and it suffused a feeling of stimulus and strength. I continued this cure, and persevered till the thirst was conquered. For two years I have not tasted liquor, and I have no desire for it. Lately, to try my strength, I have handled and smelt whisky, but I have no temptation to take it. I give this for the consideration of the unfortunate, several of whom I know have recovered by means which I no longer require."

The Family Circle

"The child is father of the man."—*Wordsworth.*
"In bringing up a child, think of its old age."—*Joubert.*

DOMESTIC HEALTH.

By S. Phillips Day.

A very considerable proportion of the diseases which are frequently rampant, and always active, among the populations of large centres of industry, is now known to be avoidable. As an eminent Transatlantic writer observes:—"Of the total sickness and mortality of the human race, a very large share is due to those diseases which may become epidemic, and these are of special and peculiar interest to the sanitarian, not only because of their frequency and the magnitude of their effects, but because it is believed that they are all more or less preventable." It is true that the public mind everywhere is waking up from its wonted apathy on matters appertaining to hygiene. In England this is markedly the case at the present time. Our respected progenitors, in their sublime indifference, cared little, and thought less, about the laws of health. Nor are we sure that in this enlightened epoch there are not some antiquated people so wedded to their optimistic notions as to consider sanitarian views beneath their notice. In the olden times, men contented themselves with living as did their forefathers before them. They never troubled their pates respecting the constitution of the air, the causes of disease, or the dangers arising from foul gaseous emanations or parasitic growths. They considered that an allotted term of life was afforded them, which it was not within the compass of their power either to limit or extend. Scientific truths had no charms for them. Hence, any opinions contrary to their own were regarded as simply new-fangled notions, the outcome of erratic brains. Nor did the recurrent epidemic visitations, or the heavy bills of mortality with which the country was afflicted, operate to remove such crass delusions.

During the past quarter of a century much hygienic progress has been made, although a vast deal more remains to be achieved. The public must not only be put in possession of the requisite knowledge—such as is the mission of this periodical to promote—but know also how to put this knowledge into every-day practice. The health of a nation or a community is a matter of graver import than at first sight appears. Indeed, it is not going too far to aver that the wealth, progress, and perpetuity of a nation are closely bound up with its physical condition. Not that absolutely perfect health is obtainable—that is to say, if we associate with such condition undisturbed equilibrium of bodily function; but such a modicum of health as will enable people to fulfil their labours of mind and body—

"From labour health,
From health contentment springs."

Dr. F. de Chaumont not long since pointed out how out of the 700,000 deaths recorded annually by the Registrar-General, a startling proportion is due to consumption, diarrhœa, diphtheria, enteric and scarlet fever, and affections of the respiratory organs. Now, the most formidable of these scourges are known to be propagated by two potent agencies—namely, impure air and contaminated

Sanitary Inspections.—Fee for Survey and Report, in London, 2 Guineas. Estimate given and Improvement Works carried out when required.—The Sanitary Engineering Co., 115, Victoria-street, Westminster, S.W.—[Advt.]

water. To our defective sanitary arrangements, therefore, must be attributed a good deal of the sickness and mortality which are constantly occurring in our midst. Of the several epidemics which prostrate and carry off the population possibly small-pox is the most obstinate and progressive; and yet in a paper read not very long ago by Mr. Pearson Hill, before the Sanitary Institute of Great Britain, it was noticed that for the ten years preceding 1871 the number of deaths from variola had been 800 annually, while for a similar period ending in 1880 the yearly mortality from this disease had increased to 1,600. Singular to remark, the fatality from small-pox has almost ceased in the provinces. This fact strongly contrasts with the sharp outbreaks which during the past quarter of a century have spread over Greater London. No doubt whatever exists that vaccination is the only means by which to repress periodical outbreaks of small-pox, and finally exterminate it. Nevertheless, there are multitudes of ignorant and obstinate parents who remain wilfully indifferent to the well-being of their progeny, and defy law and duty alike.

The deadliest enemy with which individuals and the sanitary authorities of great cities have to contend is poisoned air. The human body sustains a peculiar relation to the atmosphere, being on the one hand, always present as a normal constituent; and, again, owing its presence to the spoliation of another normal constituent, that is, to combustion, arising from the agency of oxygen. An undue excess of carbonic acid in the air is highly prejudicial to the public health. Immense amounts of this injurious gas are produced by the consumption of fuel in furnaces and fire-places, the necessity for which it is to be hoped Science will one day obviate. Then there are the excretions from the lungs and skin, and the various and nameless rank emanations from house-drains, sewers, rivers, cemeteries, and so forth. What people most suffer from in densely-packed places is an excess of carbonic acid. The effects commonly attributable to its action embrace giddiness, head-ache, prostration of body and mind—low vitality, in fine. Hence the abnormal and constant craving for stimulants among the ill-fed, ill-housed poor of London and elsewhere. Nor does what we have narrated contain the whole category of ills. There remain other evil agencies at work wherever people are thickly clustered, which agencies further tend to augment sickness, contagion, and the bills of mortality. The foreign ingredients in solid form that serve to pollute the atmosphere are numerous. Like unto dust, such are taken up from the soil and scattered by the wind, it might be for hundreds of miles. Among these may be mentioned the *débris* from vegetation in a putrescent state; the minute animal formations, possibly lifted from the water by the force of evaporation; vegetable fibre, spores and variolous corpuscles; with amorphous substances, such as the remains of animal bodies or animal discharges.

Medical and Sanitary Exhibition, 1881.—Award of Merit.—Diabetes. Van Abbott's Gluten Bread, and all other suitable Foods for Diabetic Patients. Dietary Tables and Price Lists post-free on application. Van Abbott, 5, Princes-street, Cavendish-square, W.—Delicate Children and Adults Suffering from Nervous Depression. Van Abbott's Hypophosphite of Lime Biscuits, for Delicate Children, especially those suffering from Deficiency of Bone, Weak Joints, or Debility, and Adults suffering from Nervous Depression. Each Biscuit contains five grains of the Hypophosphite of Lime. "Quite free from disagreeable taste, and taken willingly by Children, and certainly provide an excellent means of administering this valuable compound. Our analysis proves the accuracy of the printed descriptions on the labels of the boxes. The Biscuits were suggested by Mr. W. Adams, of the Orthopædic and Great Northern Hospitals." — *Lancet*, Nov. 4, 1876.—Van Abbott, 5, Princes-street, Cavendish-square.—[Advt.]

The domestic health, especially of the labouring orders, is further injuriously affected by the organic deposits that taint the walls and furniture of dwellings. Where a number of people live their perspiration and breath serve to produce an unhygienic condition. "Very few, if any, places exist," remarks a well-known medical writer, "which do not possess their own special odour, perceptible to those who have a fine organisation with respect to smell. Whence this odour comes is frequently very hard to decide. It is evident, however, that it may, in part, be traced to animal deposits in furniture and walls, in carpets, cushions, and curtains." Our sunlight—when we Londoners can get it—and rigorous cleanliness of person and of one's surroundings, are the chief antidotes against these and other equally subtle invisible agencies which prove eminently destructive to the health of communities. Bad air, often unavoidable, and bad circumstances, exercise a kind of reflex action upon each other, and are manifestly responsible for a large share of the illness which prostrates the poor. In the miserable haunts and human styes of over-crowded cities the physical atmosphere is often found insupportable. Dr. Letheby, who applied chemical tests to assist his investigations, asserts that the atmosphere in our London dens is not simply deficient in the due proportion of oxygen, but that it contains three times the usual amount of carbonic acid, in addition to a quantity of aqueous vapour charged with alkaline matters, the odour from which is abominable. It is high time that the bitter cry of "Outcast London" should be raised.

It is certainly impossible altogether to prevent the impurities arising from the several forms of decomposition occurring in soil, rubbish, animal excretions and exhalations, and in dead organic matter generally. Wherever communities of men form, such deleterious matters can scarcely fail to exist. Yet it is reasonable to suppose that a fair average of domestic health may be kept up everywhere, provided proper attention be paid to certain sanitary arrangements. Personal cleanliness will go a great way in achieving this result. The sanitary authorities also will have to do their share of the work. When the necessary importance is attached to hygiene, and the State combines with the public in carrying out the plain laws of health, then the terrible diseases which commit so much ravage in the country will almost cease to be known—shall be remembered but as things of the past, just like the plague, the sweating sickness, and leprosy. Meanwhile, let physicians, scientists, publicists, and all desirous of the public good, live in hope, and work in faith, looking forward to the final upshot of their meritorious efforts.

To Stop Hiccough.—A correspondent of the *Medical Record* recommends firm compression of the heaving ribs by both hands. In two cases where this was done the hiccough almost instantly ceased.

As a matter of self-preservation the community should be aroused as to the necessity which exists for the compulsory notification of infectious diseases; and all breaches of the law should be followed up by prosecution. A convalescent from typhus, whose person and clothing had not been efficiently disinfected, might communicate the disease to others in a tramway car, in a railway carriage, in a church, or other public assembly; so that the source of the disease might never be ascertained; and, doubtless, such cases do occur.

International Health Exhibition.—Eastern Gallery.—Why Burn Gas?—Chappuis' reflectors diffuse daylight. Factory, 69, Fleet-street.—[Advt.]

SANITATION AT THE SEA-COAST.

Writing under the above title to the *Lancet*, Dr. Park, of Crosshill, says:—"Some recent experience leads me (though the same thing has no doubt in various ways been done already) to direct, through your columns, the attention of the public, and especially heads of families, to the necessity of looking well to the drainage and closet arrangements of coast houses before taking them for the season. For, whilst during the last five or ten years great improvements have been made in large towns in regard to these matters, my experience is that very little has been done to put houses at watering-places in a proper sanitary condition. In most of the watering-places I have visited, the hotel and many of the lodging-house closets have been of the worst possible description, the result of which is that families leaving home well (comparatively) find some of their members rendered invalid by one or other of the many depressing ailments which follow in the train of sewer-gas inhalation, even when modified by the ozonised atmosphere of the sea, if, indeed, they fall not victims to typhoid fever itself. A great deal of this (might I not write *all?*) arises from supineness and *laissez-faire* on the part of visitors, and their ignorance of what is requisite to make a closet healthy. Previous to taking a house or a lodging, or even going to an hotel, heads of families should satisfy themselves, from personal examination or from the report of some skilled person, on these four points—namely: 1. That the closet is an effective one. 2. That the outlet or waste-pipe is adequate, is ventilated properly, and has an adequate outfall. 3. That the water-supply is sufficient for the proper flushing and outwashing of the basin and trap. 4. That the pan is clean.

It may not be possible to get modern conveniences and sanitary adaptations in all coast-houses and lodgings; nevertheless, those contemplating coast-residence should endeavour to induce, coax, or coerce landlords and landladies to substitute the new washout pans for the old hopper-pan arrangement. It is a question, indeed, whether a tenant might not effect a great saving, in the end, by himself replacing the old by the new, especially if he has a large establishment, or if the water-supply, as so often happens at the coast, is defective, or intermittent, or both. Of washout-closet basins there are now several in vogue; but the best I have seen are those called "Twyford's National" and "Alliance," and a cheaper sort on the same principle called the "Crown," which were exhibited at the Sanitary Exhibition here last year. They are being very generally adopted in Glasgow, Edinburgh, Dundee, and other large towns, and, in my opinion, are the very closets required for coast and country residences. The fixed basin, scullery, and pantry arrangements in these houses should also be investigated by intending occupiers. It should be seen that the pipes are of good quality, that the water-supply and soil-pipes are not too closely placed together, and that they are not carried underneath the house-floor or lobby, but pass as nearly as possible directly out of the house.

I have observed for some years past that the weak points of coast and country residences reveal themselves each recurring summer and autumn by the more or less sudden development of diphtheria, enteric (or typhoid), scarlet, or puerperal fevers amongst their occupants; and frequently the public are held on the tenter-hooks of suspense regarding the health of some distinguished personage whose life is for the time imperilled by some such cause. I think it would be well if this succession of events should cease, and determine for a season at least; and if this letter should assist in that direction, it will be a satisfaction to those who, like myself, believe in the dictum, "Salus populi est suprema lex."

Public Health

"Health is the first Wealth."—*Emerson.*

EARTH-BURIAL AND CREMATION.

By A. G. Cobb.

(From the *North American Review.*)

III.

As high scientific authority is seldom called on to discover the origin of local diseases unless it assumes a malignant or epidemic type, it is safe to believe that thousands of cases of illness and death are occasioned by the disinterment of human remains, without the true cause of the malady being suspected. When grave-yards are dug up, who is there to look into the distant past, and say: "This man died of small-pox, pass him by; and that one of the cholera, disturb him not"? Remembering that, a few years since, the yellow fever for two successive summers ravaged the south, how strong is the presumption that the second epidemic was largely occasioned by the burial of the victims of the first? During the reign of terror that existed, men dropped like leaves, and, insecurely coffined, were hurried to common and shallow graves. Sometimes in the country districts they were buried almost where they fell. And judging the future by what had been demonstrated in the past, it seems inevitable that visitations of this frightful malady will yet sweep sections of the country, caused from the disturbance of infected burial-spots by coming generations ignorant of their contents.

Thus far we have considered only the dangers arising from exhumation—dangers that would be simply annihilated by the enlightened adoption of cremation. Independent even of disinterment, the infected corpse, while hidden in the grave, can pursue its work of harm. In a letter from Dr. Joseph Akerly, embodied in a publication by Dr. F. D. Allen, 1822, the belief was expressed that Trinity churchyard was an active cause of the yellow fever in New York in 1822, aggravating the malignity of the epidemic in its vicinity. During the epidemic in New Orleans, in 1853, Dr. E. H. Burton reported that in the Fourth District the mortality was 452 per thousand, more than double that of any other. In this district were three large cemeteries, in which during the previous year more than 3,000 bodies had been buried. In other districts the proximity of cemeteries seemed to aggravate the disease. Dr. Ranch personally observed, during the epidemic of cholera in Burlington, Iowa, in 1850, that the neighbourhood of the city cemetery was free from the disease until about twenty interments had been made there, and then deaths began to occur, and always in the direction from the cemetery in which the wind blew. During the prevalence of the plague in Paris in the beginning of the eighteenth century, the disease lingered longest in the neighbourhood of the Cimetière de la Trinité, and there the greatest number fell a sacrifice. In a report presented to both Houses of the British Parliament, in 1850, Dr. Sunderland testified that he had witnessed several outbreaks of cholera in the vicinity of graveyards, which left no doubt on his mind as to the connection between the disease and such local influences.

The investigations of the Massachusetts Board of Health showed that diphtheria and typhoid fever were disseminated not only by infectious emanations from sick-rooms, but also from the graves of persons who had died of these complaints And Dr. F. Julius Le Moyne, after fifty years of medica practice wrote:—

"The inhumation of human bodies, dead from these infectious diseases, results in constantly loading the atmosphere, and polluting the waters, with not only the germs that arise from simple putrefaction, but also with the *specific* germs of the diseases from which death resulted."

To this noble physician belongs the honour of first introducing cremation in this country. A life of observation had convinced him that the present custom of disposing of the dead entailed pain, misery, and death upon the living. Believing, to quote his own words, that "men are always bound to act in conformity to the degree of knowledge they possess," he built the Washington crematory in the face of much ignorant ridicule and opposition. The future will honour the spirit that guided him, and appreciate the wisdom that his act displayed. Independent of the dangers arising from the interment or disinterment of those dying from contagious diseases, the cemetery possesses evils *sui generis*. Dysentery, low fevers, and ulcerated sore throats are the disorders shown to prevail in a marked degree among those dwelling in its vicinity. The air likewise becomes vitiated, and the springs and wells in the vicinity contaminated. These statements are not chimerical, but are amply verified by proven facts. And it may be well to repeat here what was stated when considering another branch of our subject, that these slow, hidden, but ever-continuing evils attract marked attention only when they occasion epidemics. Until then, little effort is made to discover the fountain of trouble, and unaccountable cases of death are generally attributed to the mysterious wisdom of Divine Providence.

In 1740, a fatal epidemic of fever in Dublin being distinctly traced to emanations from the churchyards, intramural interments were prohibited. New York City, as far back as 1814, furnishes another example supporting our statements. At that time, according to Dr. F. D. Allen, who wrote in 1822, a battalion of militia was stationed on a lot on Broadway, the rear of which bounded on Potter's Field, from which arose a vile effluvium. A number of soldiers were attacked with diarrhœa and fever, and although removed at once, one died, though the others rapidly recovered. A case similar to this was told to Mr. Chadwick by an English officer, who stated that while he and his command occupied as a barrack a building overlooking a Liverpool churchyard, they always suffered from dysentery. Instances are very numerous of illness of this nature, and also of throat troubles occasioned by the inhalation of vitiated air. Mr. Eassie mentions the interesting experiment of Professor Selmi, of Mantua, who "has lately discovered, in the stratum of air which has remained during a time of calm for a certain period over a cemetery, organisms which considerably vitiate the air, and are dangerous to life. This was proved after several examinations. When the matter in question was injected under the skin of a pigeon, a typhus-like ailment was induced, and death ensued on the third day."

It is an error only too prevalent, to require an unsavoury smell as an evidence that a neighbourhood is unhealthy. It is no more essential than that water to be unhealthy should possess a disagreeable taste. Both of these fallacies extensively prevail; and, as regards water, we doubt if there is a rural cemetery in this country which has not a well somewhere among its graves, receiving abundant patronage, if it has no offensive taste. The danger to be apprehended from this source, or from any streams in the vicinity of burial-grounds, is forcibly pointed out by the London *Lancet*, which says:—

"It is a well-ascertained fact that the surest carrier and most fruitful *nidus* of zymotic contagion is this brilliant, enticing-looking water, charged with the nitrates which result from organic decomposition. What, for example, was the history of the Broad-street pump, which proved so fatal during the cholera epidemic of 1854? Was its water foul, thick, and stinking? Unfortunately not. It was the purest-looking and most enticing water to be found in the neighbourhood, and people came from a distance to get it. Yet there can be no doubt that it carried cholera to many who drank it. . . . We are afraid Mr. Haden will have to confess that at present the only known method of making organic matter certainly harmless is the process of cremation."

As to Irish church-yards, Dr. Mapother, who inspected several, declared that he "generally found them placed on the highest spot near the most central part, whence, of course, all percolations descend into the wells." In 1877 a malignant epidemic broke out in a section of Elsinore, Denmark, that baffled the skill of the leading physicians in their efforts to subdue it. On the drinking-water in the affected quarter being analyzed, it was found poisoned by the corruption that had drained into the wells from an adjoining cemetery. Professor Brande has given it as his opinion that the water in all superficial springs near burial-grounds is simply filtered through accumulated decomposition.

It was an unfortunate metaphor, that of the London doctor, who having been sent for by a lady in Chelsea, remarked on her apologising for asking him to come such a distance, "Don't speak of it; I happened to have another patient in the neighbourhood, and can thus 'kill two birds with one stone.'"

In the working-classes in our great towns, says the *British Medical Journal* especially amongst women severe dyspepsia is very frequent, owing to the free consumption of tea that has stood for half-an-hour or longer, or has been kept on the hob. Boiling water should be poured on the tea-leaves in the tea-pot, which should then be placed on the table, and the tea should not be allowed to stand longer than ten minutes. Even then, it is not advisable to drink more than two small cups of such tea. This beverage should never be drunk within an hour before a meal nor immediately after dinner or heavy lunch, as it may cause flatulence or gastric catarrh. Tea-dinners, or tea with meat, are not wholesome, and often upset persons whose digestion is naturally weak. Lastly, tea increases or causes sleeplessness and tremors of the hands, and masks the effects of over-work in studious subjects of sedentary habits. As the drinking of strong over-brewed tea is very general among the poor, and as good tea is drunk to excess, owing to certain fashions amongst the upper classs, the dyspepsia which it causes is on the increase. Coffee is very often consumed with tobacco, between meals, a habit which has been known to cause severe gastric catarrh until both luxuries have been given up; it is also less tolerated than tea by persons suffering from nausea due to debility or excesses of diet. Cocoa and chocolate are nutritious drinks, but, like all other hot fluids such as soup, they may cause or increase dyspepsia when drunk in quantities at a time. These drinks certainly never produce the very grave visceral diseases universal amongst the intemperate, but it must be remembered that chronic dyspepsia, which they so often cause, is strongly suspected by eminent authorities as one of the origins of chronic kidney-troubles.

Pure Water is such a vital necessity that, without it, illness is certain. None are more prone to the ill effects when impure than the young. To ensure a pure supply send a post-card to the London and General Water Purifying Company, Limited, 157, Strand, London, W C., who will return particulars post free.—[Advt.]

Our Bookshelf

"Reading maketh a full man."—*Bacon.*

Nineteen Centuries of Drink in England. A History. By Richard Valpy French, D.C.L., &c. (London: Longmans, Green, & Co.) 1884.

The drink question has always presented a topic full of suggestiveness to all thinking minds. The subject in question is so closely bound up with national as well as individual prosperity, that it would be strange if social reformers and sanitarians were found to neglect the grave issues which the problems of intemperance present to view. There is another side to the drink question, however—its social side. It has always struck reformers of every grade of culture that one of the most powerful causes of intemperance lies in the double relationship which drinking habits show to social life and to national habits and customs. It is a curious fact that there scarcely exists a nation which does not number among its social customs the use of some form or other of intoxicating beverage. Even savages appear at an early stage of their evolution to discover the art of manufacturing a species of intoxicant. History, both sacred and profane, teems with examples of the use of beverages which were credited, rightly or wrongly, with making merry the heart of man. It is this innate tendency, if so we may term it, to devise forms of intoxicants which has always complicated the problems of intemperance and its cure. Too zealous reformers have not always appreciated the difficulties of their task, and have not made allowance for the tremendous influence of national habit in inducing intemperance. Reform in the matter of such deeply-rooted habits, however necessary and desirable such reform may be, is not a thing to be accomplished in a day. The progress of the temperance cause—we use the phrase "temperance" in its literal meaning—is, after all, a matter of slow growth. It depends for its true advance on the spread of education, and especially of that best of educative aids—a knowledge of physiological science and of the teachings of medicine respecting the place and power of alcohol and other intoxicants in the production of disease, and in the preservation of health. As the people are better educated, they will become more and more temperate. It is education, and not sentiment, which in the long run will prove the most powerful reformer of intemperance in the nation at large.

Dr. French tells that the object of his work is to ascertain the part which drink has played in the individual and national life of the English people. He has dived deep into the history of the beverages which have been in use at various periods of the national history. He shows likewise in a very clear fashion the customs and laws which from time to time have prevailed and been enacted in the matter of intoxicating liquors. He will have the sympathy of every thoughtful mind when he declares that the customs of the nation in this respect have not sprung up in the night like a mushroom, but have been forming for ages. The author's standpoint gives him at the outset an admirable position as a clear and unbiassed chronicler of the nation's doings in the way of drink from the earliest times to the present day. His book in this light should be studied by the legislator and the reformer alike. The general reader will find it full of most interesting information, and the professional man will be certain to glean much that is new from its pages.

The author begins with the Roman period. The ancient Britons lived simply, but upon extraordinary occasions, to quote the words of Diodorus: "They drank a kind of fermented liquor made of barley, honey, or apples, and when intoxicated, never failed to quarrel like the ancient Thracians." Wine was unknown in Britain before the Roman occupation, and it is to Rome also that we owe the fashion of toasting, or health-drinking. Intemperance was, of course, perfectly common in all ranks of society in these days; while, in the Saxon period which succeeded, there was also sore need for reform in this direction. The Benedictine orders, as Dr. French tells us, were by no means distinguished for self-mortification, but appear to have pretty freely indulged in the "cup that cheers." To the Saxon period succeeded the Danish epoch. Here also, the rioting and drinking habits of the nation appear to have been all too thoroughly exemplified. Even in the medicaments of the time strong drink played a prominent part. "For the cure of sore eyes," says Dr. French, "a paste of strawberry plants and pepper was prescribed to be diluted for use, in *sweet wine.* Again, patients, while sitting in a medicated bath, were to drink a decoction of betany and other herbs, which were to be boiled in *Welsh ale.*" History is unanimous in showing that England, at the time of the Norman Conquest, was a thoroughly drunken and besotted realm. Even Fuller remarks of the Conqueror's opponents at Hastings, that "the English, being revelling before, had in the morning their brains arrested for the arrearages of the indigested fumes of the former night, and were no better than drunk when they came to fight." This is a sorry picture of those early days; it is impossible, however, to deny the accuracy of the delineation.

The general impression that the Norman customs brought greater sobriety into England appears, on the whole, to be fully borne out. The Saxons and Danes drank ale, wine, cider, mead, morat, and pigment. The Normans introduced, in addition, "clarré," "garhiofilac," and "hippocras." Wine became more common as a beverage, but ale and mead were the usual liquors consumed by the people. When the Duchy of Guienne was acquired in 1152, the wine traffic with Bordeaux was established; hence this branch of the wine trade boasts, at least, of a highly respectable antiquity. The Plantagenet period, Dr. French tells us, might be appropriately named the "Light Wine Period." This period, says our author, "is instructive, and might have served for instruction to certain of our legislators in the present reign, who first tried beer (houses) to put down spirit-drinking, and then tried wine to put down spirits and beer. The facts of English history were disregarded, and these *remedial* experiments adopted, in the light of which the irony of the Spartans pales, who, to put down drunkenness, made their slaves drunk, and then exhibited them as hideous examples." An interesting episode is told us of the fifty-first year of Henry III. (1266), in which it was enacted "that when a quarter of wheat is sold for 3s. or 3s. 4d., and a quarter of barley for 1s. 8d., and a quarter of oats for 1s. 4d., then brewers in cities ought, and may well afford, to sell two gallons of beer or ale for a penny; and out of cities, to sell three or four gallons for a penny. These regulations," adds Dr. French, "are indicative that the manufacture of ale had become of much consequence." When in 1277, the Archbishop of Canterbury visited his lands at Tarrings, in Sussex, the prices of food were as follows:—A bushel of wheat, 2¼d.; a carcass of beef, 1s. 4d.; a yearling hog, 8d.; four gallons of beer, 1d.; two good hens, 1d.; and five score eggs, 1d. In these latter days, we may well wish that circumstances had rendered possible the lower tariff of the thirteenth century—a wish which the increase of population alone, and its resulting effects on the food-supply would render utterly futile.

The institution of *inns* and *taverns*, as Dr. French points out, tended to abolish the older and more general habits of

hospitality which characterised the national life. In the time of Edward III., only three taverns were allowed in the metropolis; and publicans were compelled to put up a sign, while in the case of other trades, such a sign was optional. At the accession of Henry IV. (1399), seven fountains in Cheapside ran white and red wines; while the quantity of liquor named as figuring at the breakfast tables of the nobility, were—for a gentleman and his lady in Lent—a quart of beer and the same quantity of wine. A curious old distich which runs either:—

Hops, reformation, bags, and beer,
Came into England all in one year.

Or,

Hops and tin kegs, carp and beer,
Came unto England all in a year.

seems to show that hops were first introduced in the reign of Henry VIII. It is, however, probable that hops were known before the time of that monarch, for we find him interfering in the matter of beer, and forbidding his subjects to put hops into their ale. We wish we had space to quote here a clever parody, inserted by Dr. French into his pages, on the "Seven Ages of Man." This satire, using the well-known passage from "As You Like It" as a basis and model, thus concludes:—

The sixth stage shifts
Into the stupid, slipping, drunken man,
With "blossoms" on his nose, and bleary-eyed,
His shrunken face unshaved; from side to side
He rolls along, and his unmanly voice,
Huskier than ever, fails and flies,
And leaves him staggering round. Last scene of all,
That ends this true and painful history,
Is stupid childishness, and then oblivion—
Sans watch, sans chain, sans coin, sans everything.

Throughout the Stuart and Hanoverian periods Dr. French leads the reader in a historic ramble which, at every step, is rich in antiquarian and social lore. He has evidently collated his materials with immense care, and the formidable list of authorities which prefaces his work, alone testifies to the extent of his reading and research. The volume is a complete mine of reference on all topics connected with the "drink question;" and for a copious index Dr. French's readers will not be, by any means, ungrateful. The author has drawn a terrible picture of the prevalence of intemperance at various periods of English history, and he closes his labours by a summary of the latest legislative enactments and endeavours which our own day has seen. No more interesting volume has been presented to the public notice for a lengthened period, and we apprehend Dr. French will be found to have aided largely the cause of temperance reform by his enumeration of the long and black trail which intemperance has left on the page of English history from the most remote times.

INTERNATIONAL EXHIBITION LITERATURE.

International Health Exhibition — Official Guide and Official Catalogue. (London: W. Clowes & Sons.) 1884.

This "Guide"—to be purchased at the trifling cost of threepence—is really a little marvel in the exactness of its details, and in its admirably arranged notices of the various departments of the Exhibition. A coloured plan gives a clear idea of the location of the exhibits as classified in the "Official Catalogue." Armed with this little manual, no one can pay even a "flying visit" to the Exhibition, without largely benefiting from the information the pages of the book are certain to convey. We do not remember to have seen, contained within such small compass, so lucid and detailed a description of any great collection of exhibits, as is included within the limits of this pamphlet. No visitor to the Exhibition should be without a copy of this volume.

The "Official Catalogue" of the Exhibition is intended as a specific guide to the full arrangement of the various departments of the executive. This publication, which contains the official lists of exhibitors and exhibits, and also the various "memoranda" relating to the conduct of the Exhibition, will be found eminently useful by all who desire to possess an intimate acquaintance with the working of the various departments and details. In itself, this "Official Catalogue" will constitute a very appropriate *souvenir* of the second of the great exhibitions which have contributed to the education and culture of the British public.

International Health Exhibition Handbooks.—(1) *Our Duty in Regard to Health.* By G. V. Poore, M.D., F.R.C.P. (London: W. Clowes & Sons.) 1884.

Dr. Poore writes in an admirably clear fashion regarding the duty which lies upon us, as individuals and as a nation, in respect of the prevention of disease. His manual is divided into five chapters, dealing with the "House," "Water," "Air," "The Right Use of Refuse," and "Burial," respectively. The author has succeeded in the most admirable manner in placing before his readers a thorough scheme of sanitation. He deals with the necessary conditions of life and health, and shows, clearly and forcibly, how length of days depends upon attention to the details of ordinary living, and how pure air, pure water, and the proper disposal of refuse, form the main points connected with the preservation of health from the many unseen enemies which hover around us. Dr. Poore, in respect of burial, holds that "cremation is not necessary." He approves of Mr. Seymour Haden's "Earth to Earth" system; but we are totally unable to agree with his dictum that "the cemeteries of one generation ought to become the recreation-grounds of the next." In the face of death from infectious diseases, and of revelations regarding the vitality of germs, this statement is not likely to be accepted, but, on the contrary, to be condemned by the vast majority of sanitarians.

(2) *Legal Obligations in Respect to the Dwellings of the Poor.* By Harry Duff, M.A., Barrister-at-Law, with a preface by Arthur Cohen, Q.C., M.P. (London: William Clowes & Son.) 1884.

The subject of this *brochure* occupies, of course, a paramount place in all deliberations connected with national health and well-being. The state of the poor, their liability to the attacks of disease induced by want of food, insufficient house-room, bad ventilation, and other insanitary conditions, forms, of itself, a powerful factor in the work of inducing illness, and of retarding the national prosperity. The economics of sanitation really press with a very heavy hand on the deficiencies of health conditions represented amongst the poor, and the removal of these insanitary factors tends, proportionately, to lighten the burdens of ratepayers, in addition to evolving a happier life for the toilers and moilers of every age. We thoroughly agree with Mr. Cohen that Mr. Duff has discharged a difficult duty most creditably in respect of the authorship of this manual. Within its limits are comprised details of every item connected with the dwellings and general life of the poorer classes. The legal aspects of such topics as "Nuisances," "Cellar Dwellings," "Lodgings and Common Lodging-houses," the "Torrens' Acts," "Sir R. Cross's Acts," are fully treated in this manual, and

the reader is placed in possession of the most reliable data connected with these various topics. We have not hitherto met with any manual in which the provisions at present existent in connection with the poor and their dwellings are so fully and explicitly treated as that before us. Mr. Duff's work is therefore likely to be widely read, and to be found highly useful by many whose duties or inclinations lead them to become acquainted with the legislation which deals with the life and health of the masses. Mr. Cohen's concluding words in his preface, give the real clue to the amendment of many of the evils under which the poor at present suffer. "It is not impossible," says that gentleman, . . . "even it is not difficult, for the legislature to provide means to secure the due exercise of those powers which it has already called into existence, and which, if duly exercised, are almost co-extensive with the evils which result from the deplorable condition of the dwellings in which so many of our poor live."

Sanitary Appliances, Etc.

PIXENE PREPARATIONS.

Mr. Wheeler, of Ilfracombe, has sent us samples of his "Pixene Liquid" and "Pixene Soaps"—preparations which are calculated, in our opinion, to be highly valuable additions to the list of disinfectant, air-purifying, and toilet requisites respectively. "Pixene" is a purified extract prepared from pine tar, which, itself, has deodorant properties of high value. As marked advantages of "Pixene," may be mentioned the fact that it does not stain any fabrics with which it comes in contact, and that it is non-poisonous. A very small quantity added to a bath or to water, produces an agreeable odour, and acts as an air purifier of powerful kind. In this sense, "Pixene" is therefore to be ranked amongst the volatile disinfectants, and as such, becomes useful, not merely for the cleansing of clothes from disease germs, but for the purification and freshening of the atmosphere of the sick-room; while added to closets and drains, its action is highly effective, in checking smells and dispelling noxious odours.

The "Pixene Soaps"—toilet and medical—are likely to grow into high favour as they become known. They are well-compounded, and contain no noxious ingredients, while the "Pixene" they contain serves as an agreeable adjunct to the toilet, and in the case of the Medical Soaps, may be used with benefit in eczema and also in the cure of those troublesome skin-eruptions which the advent of the summer is liable to induce. The "Pixene" preparations may be had of all chemists.

THE AUTOMATON SELF-INKING POCKET STAMP.

"The London Rubber Printing Co.," of 33, Cheapside, London, E.C., have produced a singularly ingenious *bijou* stamp, which cannot fail to be of immense service to editors, merchants, collectors, and others who have occasion frequently to endorse manuscripts and accounts. The stamp being self-inking, acts by merely depressing the handle, and returns, automatically, to a position of readiness for the next operation. Anything more ingenious than this stamp we have not seen for a lengthened period. Its use in our hands has saved an immense amount of labour in endorsing manuscript, while the rubber-type gives a clear and lasting impression. The prices of the stamps, which can be fitted with type of any description, are extremely moderate. All who wish to economise time in addressing envelopes, wrappers, &c., cannot do better than provide themselves with a sample of the "Automaton" stamp.

"CALVERT'S DOMESTIC CARBOLIC VAPORISER."

Messrs. F. C. Calvert & Co., of Manchester, have produced a singularly neat and handy little "vaporiser," which is sold complete at the low price of 1s. 6d., and which, in our hands, has acted efficiently in the diffusion of carbolic acid vapour in rooms. The Vaporiser consists of a tin dish and glass socket, in which a specially-prepared night-light is placed. Over the light a cover is set, in the hollow top of which, either one-eighth of an ounce of the fifty per cent. carbolic powder, or liquid No. 4 or 5 carbolic acid, is placed. The night-light burns for five hours, and the vapour of the carbolic acid is given off for at least three hours by means of this simple contrivance. The vapour can, of course, be renewed and intensified at any time by adding fresh powder, or by using the liquid acid. There is no doubt that the searching powers of the carbolic vapour render this method of disinfection, &c., singularly useful in all cases in which the atmosphere of rooms requires purification. For the destruction of moths in furniture and elsewhere, and for the extermination of mosquitos, we should imagine this handy and cheap apparatus will be found very effective. Its price places it within the reach of all, and in cases of infectious disease the use of one or two of these "Vaporisers" would undoubtedly tend to prevent the spread and diffusion of the infective material. The "Carbolic Powder," supplied with the "Vaporiser" contains the acid in a handy and readily-applied form.

Our Letter : Box

"Conference [maketh] a ready man."—*Bacon.*

LETTERS TO THE EDITOR.

SMALL POX AND VACCINATION.

Sir,—Dr. Domett Stone cannot greatly help his case by any appeal to Dr. Buchanan. But the words from which he once more quotes, are perhaps the most unfair which Dr. Buchanan ever wrote. Neither he, nor any one else, official or unofficial, knows the proportion of vaccinated and of unvaccinated in the population. The figures given are mere "estimates." And what is worse, they are estimates against facts, in place of being based upon knowledge.

Dr. Buchanan makes the vaccinated children under ten 861,000. The very utmost which the vaccination returns published by his office can make them are 788,435. But this will leave 128,349 unvaccinated, instead of the 55,000 given by him. As I said, no one knows the figures. We know how many of the children born are vaccinated. But we know nothing of the relative number of deaths in each class, after vaccination. Thus all calculation is based on guesses,* and is worse, very much wore, than mischievous, when it pretends to accuracy for the purpose of supporting a cruel law. But for Dr. Domett Stone to pretend that these guessed-up estimates are "facts," and irresistible, is silly.

Possibly vaccination needs such defence, but it is as well to leave it to its interested partisans.

The facts I gave can be verified by any one, from the Registrar General's return, and the hospital reports, and they utterly disproved the asserted "inestimable value" of vaccination. The annual summary for London, 1882, shows the last decade, 1871–80, to have more deaths from small-pox than the previous by 18 per million living. During the same period there were fewer deaths by seven per million from measles, by 59 from scarlet fever, by 55 from typhus and enteric, &c. Thus, on the whole, London gained 190 lives per million, and yet this was in spite of a loss of 18 by small-pox. If vaccination was any good, our greatest gains should have been by small-pox, and smaller ones resulted from the other maladies. The reverse is the case. Mere assertions and estimates can no longer be tolerated to bolster up a bad law, if these are its support, the law and its persecutions and its cruelties must go.—Yours truly,

Alex. Wheeler.

Darlington, 18th May, 1884.

THE MATÉ CUP.

Sir,—Permit me to correct a mistake which appears in your Health Exhibition Supplement for May 16. In the notice of my exhibit of Paraguay Tea, your reporter speaks of the Maté cup and bambilla as "curious instruments used by the natives of South America, in the days of their barbarism." So far from being obsolete and barbarous articles, they are in daily use by multitudes, not only among the inhabitants of the plains (the so-called Suachos); but also in domestic life by many who are no less civilized than we are.—I am, yours faithfully,

N. F. Phillips.

St. Mary Bourne, Andover, Hants.

May 19, 1884.

* If so, Mr. Wheeler should remember his argument will tell as much against himself as against Dr. Stone.—Ed. H.

QUERIES AND ANSWERS.

[Several replies have been omittde from pressure on space. Those omitted will be given next week.]

GENERAL.

Tempus Fugit.—In a few cases, we believe, the plan has proved successful—certainly not in all.

Agrotat.—The clinical thermometer you inquire about will cost from 7s. 6d. upwards. It can be had from Mr. Dollond, 1, Ludgate-hill, London, E.C., or Mr. Casella, 147, Holborn Bars, London, E.C.

Bindo.—We do not think the book can be had in this country; but try any of the French libraries in London.

C. Cox.—The "bacillus," or germ theory of consumption is that to which you heard allusion made. See paper on "Consumption and Infection," in a comparatively recent number of Health.

Anster.—The Sanitary Paper Company is the firm you mean—30, Bury-street, London, E.C. We can confidently recommend the paper. It is a pure paper, as we reported it to be, eminently suited in your institution as a preventive of drain stoppage.

A. Cole.—1. "Comedo," or "Comedones," is a term applied to the common skin trouble in which the sacs of the hairs and the skin-ducts are plugged by dry secretion. "Acne," or "blackheads," is an advanced stage of comedones, in which the irritation has developed small pustules. 2. Yes; it is true that a microscopic mite—the *Demodex*—lives in the hair-sac under such circumstances. It does no harm, apparently, and is certainly not the cause of the acne.

A. T.—1. No; the gall-bladder is merely a storehouse of bile. The liver is the bile manufactory. 2. See reply to "A. Cole" above.

Inquiry.—You should certainly, in your examination of ranges, see the Wilson "Ranges." They would suit your purpose (227, High Holborn, London). We believe they are highly economical as regards coal consumption.

T. Dewhurst.—Many thanks for your note and memo. Ventilating shafts should certainly be used for the sewers.

B.Sc.—1. Papers on "Cremation" are now in course of publication in Health. 2. About a month ago. Consult a file of any daily journal.

Youth.—The artery in which the "pulse" is felt is the radial artery—so named from its lying in the track of the radius bone of the forearm.

Charles West.—1. Cassell's "Family Physician" would suit you as a manual for emigration. 2. Power's "Physiology" (Cassell), or Dr. Yeo's "Physiology" (Churchill).

SANITARY.

Tagus.—1. See note on "Turpentine," page 89 (No. 58) Health 2. Thymo-Cresol might be tried. From what we have seen of this disinfectant, we are inclined to regard it as effective.

G. Wray.—1. No need to fear any such action. 2. Yes: Buchan's trap has what is named a "cascade" action in virtue of its slope, and of the rush of sewage which takes place into it—a highly-effective plan of keeping the trap in good action.

Beta.—What is your precise difficulty? State it clearly, and we will endeavour to give you a reply.

S. S. S.—1. Not as far as we know. 2. Try the first-named. 3. Not suitable.

Alarmed.—There is no need to fear. You are sufficiently far off from any special infection, and the disease can only arise by milk or water being infected.

A. T.—There is no absolute necessity to pronounce the "pan-closet" dangerous. What is meant is, that those old closets are, of all others, apt to become foul. If there is plenty of flushing it may be safe enough; but you had better replace it by a newer pattern "wash-out." The Jennings', Bostel's, &c., are all good.

MEDICAL.

K.—You are quite right. The well-known quack (whose beautiful production you enclose), like all his brethren, exaggerates natural facts into morbid symptoms, and thus alarms and deceives the ignorant and unwary. The statement you name is a gross exaggeration. Were it true, where should the majority of us be in a few weeks?

W. R. C.—What you complain of is perfectly natural in most healthy persons. All you seem to need is attention to your digestion, and to have your mind taken off what you wrongly conceive to be a serious malady. Look to your diet, eat fruits and vegetables, and take a little of the tonic recommended occasionally, but not constantly. You must persevere with cold sponging. You will get quite well, if you can only succeed in taking a cheerful view of your condition. The medical opinions you had we agree with, in ascribing your troubles to your nervous state of mind.

Carpenter.—Clothe warmly, and try rubbing warm oil or Vaseline along the seat of the pain. Take some of Lœflund's Cream Emulsion or Cod-liver Oil Emulsion, by way of a strengthening measure. No reason to fear any results, if you brace yourself up as indicated, and see to warmth and nourishment.

Student.—Continue to shave completely (both sides of face) for a month or two, and then note the result of allowing it to grow. This is your best chance of recovering lost ground. Write again after the period named, and let us hear from you. Meanwhile, of course, look well to your general health; food to be light, but nourishing; and avoid skin-chills.

A Constant Subscriber (please use some more distinctive name in future).—We should feel inclined to advise you to try Bath, Buxton, or Harrogate waters; or abroad, Aix-la-Chapelle or Wiesbaden. The electrical appliances you inquire about are thoroughly genuine.

J. Mack.—We should recommend you, if the deformity in question annoys you very much, to cautiously and gently blister the part. It might, however, be advisable, if you are in no pain, and the deformity is not very perceptible, to "let well alone." It consists, no doubt, of thickened skin; and it is doubtful if any real good can be effected by any attempts at removal. As a very mild form of blistering, you might try painting it with tincture of iodine daily, till the skin becomes affected.

W. Mills.—We should say after such an interval that your cure is complete.

H. H. C.—We are decidedly inclined to agree with the opinion that a sea voyage would benefit you. Our idea is that the pains are muscular, and depend not so much on rheumatic tendency (of which there is no direct evidence) as on general weakness, which a prolonged sea voyage, or residence by the sea, south of your present abode, would ameliorate. Try a pill consisting of two grains of sulphate of quinine, every day, an hour before lunch and dinner for a time. The tonic you name is a most excellent one, but of course cannot agree with everyone. Yours is not a case for drugs; and of course you will not allow yourself to be persuaded that what you mention as an early habit has anything to do with your present state. Your "over-athletics" probably caused your weakness.

J. D. E. E.—Try the quinine pills prescribed to "H. H. C." above. Eat little and often, rather than a large quantity at a time; and let your food be nutritious, but light. Rest for a time, would, however, do you most good. Try a change of air to the seaside, if you can leave home for a week or two. North Berwick or Dunbar are near you, and are both bracing places. It is probably your early overwork has made you somewhat liable to depression.

M. Baines.—Your headaches probably arise from mental strain worry. The symptoms you describe are those of the nervous type of headache. You might try the effect of electricity applied to the forehead, as by Miss McMullin's "Glacial Applicator" (15, Hindon-street, Pimlico, London, S.W.). Rest and freedom from worry, with electrical application, and attention to your general health, will cure you; but rest is, of all things, the most important item in your case.

A Poor Man has no need whatever to be afraid or anxious. Let him try cold sponging each morning, with brisk friction thereafter, and look after his general health. What he complains of is not unnatural, and may disappear of itself by simple attention to rest, food, and avoidance of constipation especially.

Toby.—Persevere in your attention to ordinary health-details. No need to be anxious. What you name is of no consequence, and is due more to nervousness than to any actual ailment. You might try the effect of a suspensory bandage; but it is clear you suffer from no affection requiring treatment. Don't grow morbid, or let your thoughts dwell too much on yourself.

W. M. G.—Take cod-liver oil and iron, as recommended to "Lanarkshire Lad" in Health No. 58. Loeflund's preparation of Malt Extract and Iron would suit your case also. Apply plain Vaseline to the parts. Of course, residence near the sea in a warm but bracing locality would be desirable in your case, along with rest.

Mac.—No; it will not injure the teeth. The digestive powder you name is a good preparation, and would relieve acidity.

J. M. B.—It is probable the pain arises from some slight internal irregularity, the exact extent of which a medical examination alone can decide. We should recommend you strongly to rest absolutely in bed or on a sofa, before and at the periods you name, for some time to come, and if the pain is specially severe, fifteen grains bromide of potass might be taken in a wine-glass of water. The symptoms you mention as occurring periodically indicate that some irregularity is present. Absolute rest should be tried, as in such cases the effect of such repose is often wonderful. If not bettered, write again.

Durham Lad.—Follow advice given to "George Bray" in present number, as regards the tonic alone. Your symptoms indicate overwork, probably. Let us hear how you are in a week or two. Avoid all stimulants, and drink freely of potash-water.

B. A. L.—Yes; especially if diluted with Apollinaris-water or potash-water. Lime Juice (Feltoe's Specialité) would, perhaps, be preferable.

Ingomar.—1. You should see a surgeon. There is, probably, not much wrong—certainly no danger of cancer—and a consultation with a surgeon will relieve your mind. 2. As regards the other matter concerning which you write, see advice to "Antediluvian," in Health, No. 59, and let the patient take the tonic recommended to "Albus," in No. 59, Health.

W. H. Alger.—Thanks for your kind letter. As regards "sea-sickness," the topic has often been alluded to in these columns. We believe there is no one remedy which will suit every one. Individual peculiarities count for everything here. Coffee cures one; bromide of potass another, and so on. Our best advice is regulation of diet; eating little (and light) food; and generally seeing that the digestive system and liver are in good order. We have known of cases lasting an entire voyage, despite every attempt at alleviation. Strong black coffee acts favourably in many cases; while we have seen dry champagne and bread alone taken as food for a day or two, benefit the sufferers much. There is no panacea for the great "terror of the sea."

E. Parker.—The dose is from one to fifteen grains, once or twice daily. It must not be taken for any length of time. We recommend you as a far more satisfactory remedy, to read what is said about the cure for corpulency in our review of Ebstein's book in Health, No. 57, page 73.

Modus.—See reply to "E. Parker" above.

Sempach.—Yours is a case simply for the exercise of a little mental control. Why need you be so anxious? and why not wait? You give no indication why you should be at all perplexed; and we can only suppose you are allowing yourself to drift into a morbid state of mind. Be cheerful, and occupy your thoughts with healthy topics—this is our best advice to you. You do not seem to have any special difficulties, and we can't therefore undertake to advise you further.

C. P. Cox.—See and follow advice to "J. W. Edwards" in Health, No. 59. You are not ill in any sense. Simply pay attention to your general health.

J. Collingwood.—No such remedy should be taken continuously. After you have been "toned" up, you should cease the medicine, and trust to general care of your health to continue its good effects.

Builder's Assistant.—Take cod-liver oil—a dessert spoonful after food thrice daily. Clothe warmly, and avoid chills. The symptoms you complain of are due to slight loss of strength, which the cod oil will tend to ameliorate. Food to be generous and nourishing.

S. R.—1. If you wish an effervescent aperient and laxative, Lamplough's Pyretic Saline, or the effervescent citrate of magnesia, should suit you. 2. Try bathing the feet frequently in tepid water, to which a little of a saturated solution of boracic acid has been added.

J. Reid.—See and follow advice to "J. Edwards," in Health, No. 59.

J. J. D. G.—Your queries are too numerous for reply all at once, You should consider others a little, when you make such demands on our time and attention. We can only reply to part of your queries. Repeat the others at some future date. 1. The belt you name cannot have any other effect than in giving warmth and support. It has no other qualities, as far as we know, whatever may be claimed for it. 2. If you wish to advertise in Health send your order to the "Advertising Department." 3. The patient should judge himself whether or not the belt is doing good. 4. The gentleman you inquire about is a qualified practitioner, but his advertising practices do not commend themselves to the profession.

Claudian.—1. You should take a surgical opinion first as regards the hernia. 2. Hardly, although we do not know how far the ailment is held to incapacitate candidates. 3. The examining medical officer is alone able to judge, as "hernia" itself is a very wide term.

Scotland.—Considering your past history, we are of opinion you would certainly benefit from a course of special treatment under a surgeon. In all such cases as yours a surgeon, watching the case, is alone able to secure good results; and, if you are wise, you will seek and follow such advice. It is evident, from your description, that treatment is required in your case.

Pudeo.—Don't alarm yourself, and don't believe the usual quack stories you read of and hear. Read and follow the advice given to "J. Edwards" in Health, No. 59, which exactly applies to your case. There is no need to fear. You will get quite well by ordinary attention to health-details.

A City Clerk.—You must persevere. You cannot expect a speedy return to full and vigorous health. Let your food be ligh and nourishing—milk, eggs, puddings, &c., and take Pepsine with your food. You should certainly take as much open-air exercise as you can obtain. Moderate smoking will do no harm. Your appetite probably suffers from your confined occupation. Trust to exercise to correct this.

Procrastination.—If all our correspondents were as persistent (and we must add as apparently heedless of the trouble taken to afford them help) as you are, we should despair of being able to satisfy a fraction of the demands on our time. You have had our opinion and advice—obtained on two distinct occasions. If you do not choose to follow it and to profit thereby, instead of muddling up causes and effects, that is your own affair, not ours.

Hope.—The tonic is not adapted for you. Take fifteen drops *Fer Bravais* thrice daily in water, and follow other directions (omitting the tonic, of course) given to "J. Edwards" in Health, No. 59. No need to feel alarmed in any way.

Bakewell.—There is not the slightest evidence in your letter that you are affected as you suppose. You do not mention any other symptoms save the skin-eruption, which is an entirely simple and common affection. For this, see advice regarding lime powders and other details given to "Pendragon" in Health, No. 58. If you have omitted to note any symptoms other than those you name, state them. Look to your digestion, which is probably the cause of your trouble.

A. W. G.—Possibly; a too hard water affects the digestive organs, and causes irritability. Try the effect of drinking Apollinaris or Burrow's pure Malvern Water. Of course, tea and coffee must be avoided by you.

E. T. C.—The prescription is suited to your case, and should do you good as a tonic. Don't sleep on your back (tie a reel of cotton in the middle of your back, so that it may wake you if you should assume that position); and for the rest follow advice to "J. Edwards," in Health, No. 59. The tonic there named may do you much good; if used, omit the tonic already prescribed. Your case is a very common one, but you only require care and attention to ordinary health-details to cure you. Eat fruits and vegetables, and avoid constipation.

Incognito Patella.—Your symptoms are those of overstrain of the joint, produced by your occupation, long standing, &c. Our advice to you is to undergo a course of strengthening medicine (*e.g.*, cod-liver oil and iron, as ordered to "Lanarkshire Lad," Health, No. 58). But undoubtedly your great sheet-anchor of treatment is absolute rest for a time. Without rest no treatment will be of any avail. The joint might be painted daily for a time with tincture of iodine. Glad to be of any further service. The cold water will do no harm.

A Scotchman.—Your case is one for light, nourishing food—milk, eggs, &c.—and for rest and change. Cod-oil Emulsion would be useful to you also; and ten drops *Fer Bravais* thrice daily in water would also aid your recovery. What you require are bracing remedies and rest. You should give up all vegetable foods.

E. V.—Try hot salt-water baths—add Tidman's Sea Salt to hot water—occasionally when the pain is severe, and rub warm oil or Vaseline along the seat of the pain. Tricycling will do harm so long as the pains continue, on account of the liability to cold and chill you thereby incur. If not improved, write again.

Mens Sana.—Entirely a nervous result, and often seen in people who are worried in any way, but of no importance. Remove the cause—*i.e.*, cultivate a more rational frame of mind, and don't get excited over your prospects, real or imaginary.

W. E. C.—1. No; the assertion is a quack idea, which, of course, these persons find highly serviceable in frightening the ignorant and unwary. 2. There is no such effect; what is called by that name is quite a different secretion.

Hadrian.—See to the ventilation of your bedroom. There may be a cause in ill-ventilation for your tired feeling on rising. Avoid suppers, and give up all stimulants (beer is especially bad in your case). Try Feltoe's Specialité Lime-juice and water as a beverage, and follow advice to "Pendragon," Health, No. 58. Hunyadi Janos water would suit you, but you should not make a habit of using any aperients continually. Give up tea and coffee; *try* milk instead. Pepsine, taken with your food, would also aid you. Glad to be of any further service.

Ophthalmia.—We should advise you to see Mr. Browning, 63, Strand, on the subject of glasses. He will test your sight for you, and advise you. Probably what you complain of is caused by your over-exerting the powers of your eyes in reading and writing.

Stockbridge.—1. Wash the hands occasionally in tepid water, to which a little boracic acid has been added. 2. Of no importance. Avoid constipation, and use cold sponging each morning.

[*Continued on page* 128.

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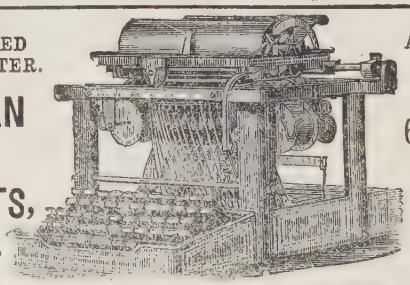

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(*Signed*) A. H. HASSALL, M.D. LON.
E. G. CLAYTON, F.C.S.

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Lucy Lindsay.—Follow advice given if ailment reappears. It is more than possible that a course of cod-liver oil would benefit you, or such a preparation as Lœflund's Malt Extract (see Health, No. 58, page 92). This preparation is of great service in imparting strength and tone. If a special nerve and general tonic is required, you should take a teaspoonful of Fellows' Syrup of the Hypophosphites thrice daily an hour before food in a wine-glassful of water.

George Bray.—Take the tonic above recommended to "Lucy Lindsay" as a general strengthening remedy, and use an injection of very weak Condy and tepid water morning and night for a time. Avoid constipation above all things. Glad to be of any further service. It is probable that citrate of potash (in fifteen-grain powders, one powder to be taken in a tumbler of water twice daily for a short time would aid in relieving your symptoms.

Delicate.—If your symptoms are as you describe, and your lungs are so much affected as you say, our earnest advice to you is to see a consulting physician at once, and be guided by him in the selection of a suitable climate for your ailment. You must know that, if the opinion you had is correct, your chances of full recovery lie in the direction of visiting some health resort adapted for consumptives. The physician will alone be able to judge whether yours is a case for Davos or for the South of England. Cod-liver oil is, of course, strongly indicated in your case. Loeflund's preparations (see Health, No. 58,) would benefit you.

P. E. M.—Try sniffing the vapour of a pint of hot water, to which ten drops tincture of iodine have been added. Practice this twice or thrice a day for some time. A change to the seaside—a bracing place—(*e.g.*, Margate or Yarmouth) often cures such cases as yours when all other remedies have failed. Cod-liver oil emulsion might also be tried as a strengthening remedy. Let us hear how you are after trying these remedial measures.

Anxious.—You might make trial of the lime-powders recommended to "Pendragon" in Health, No. 58. Take frequent hot baths at night, and use Pixene Medical Soap with the baths. A tonic (such as that recommended to "Albus," in No. 59 of Health), would also be advantageous in your case.

Jumbo.—See advice given to "E. Parker," in present number of Health. We should recommend you to study our review of Ebstein's book on "Corpulency," given in "Bookshelf," No. 57 Health. A hot bath taken every night would be decidedly weakening to most persons.

Chirurgus.—The tonic recommended to "Albus," in No. 59 Health, is decidedly the best you can employ under the circumstances. We have seen it used with success in cases such as those you describe.

C. Coxeter.—1. A notorious quack. 2. Ditto. 3. A qualified practitioner. 4. An American surgeon, lately deceased.

Intenso.—The "head," which is minute, is the part of the tape-worm which reproduces the "joints" of the animal by budding. This head must be brought away, otherwise the animal will form again.

IMPORTANT NOTICE.

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HEALTH

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, JUNE* 6, 1884.

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Notes by the Way

"Health is the foundation of all our physical happiness."—*Herder.*

A HIGHLY interesting addition to the attractions of the "Health Exhibition" is in course of being made, in the shape of a laboratory devoted to the practice of the art known as "Anthropometry." Doubtless this name itself, from its mysterious look, may draw the uninitiated; but it is to be hoped that, should the term in question be prominently displayed in the Exhibition, a full and free translation and explanation of its meaning will be appended. It would be a public loss if such an important branch of social science should be allowed to languish for want of public support, simply because people are not familiar with the meaning of its name and with its aims.

✣ ✣ ✣

"ANTHROPOMETRY"—literally "human measurement"—is a branch of "anthropology" (or the science of mankind) devoted to the investigation of the personal characteristics of individuals and communities. The pursuit of family histories, as these may be determined by the examination of the physical and mental features of the subjects examined, is the aim of "anthropometry." As Mr. Francis Galton—whose labours in this direction are so well known—undertakes the charge and supervision of the laboratory at the Exhibition, the public will have every guarantee that the tests to which they may be asked to submit themselves will be of reliable kind. What Mr. Galton proposes to do is as follows:—He wishes to show how the facts of personal history should be measured and recorded for use, in determining what the future may show to be the true "science of character." Each visitor to the laboratory will receive a pamphlet, the blank spaces in which, intended for description of physical characteristics, will be filled up as he passes through the institution. A record of name or initials, sex, age, occupation, colour of hair and of eyes, height, weight, breathing-capacity, perfection and acuteness of sight and hearing and other details, will be duly formed; and the visitor will thus be presented with the results of a scientific examination of his physical capacities.

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FAMILY records containing information of valuable character as bearing on education and training, may thus be formed by the examination of a series of related individuals. We should hope that the "Anthropometric Laboratory" will become one of the most interesting departments of the Exhibition. People, as a rule, are generally fond of having their character delineated; and such an opportunity as Mr. Galton's institution presents is not likely to occur again in our midst for some time.

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IT has often been asserted that our age daily grows more and more realistic in all its ways, and in respect of our dramatic representations, at least, this remark seems to hold good. The dramatist nowadays, as often as not, seeks to illustrate some well-known principle of human action, and makes the theme in question the dominant tone of his play. Even mental science has come to figure on the boards, and physiological truth and medical experience unite in their attempt to point the stage moral and adorn the dramatic tale. The most recent attempt in this direction is seen in the case of "Called Back," the new drama now being performed at the Prince's Theatre, London. The play is founded on the story of that name by Mr. Hugh Conway. It deals chiefly with the events which centre around the heroine, who, witnessing the assassination of her brother, receives a severe mental shock, which practically obliterates her memory for events before and after that terrible scene. The authors of the play quote Dr. Abercrombie to the effect that "the principle in such cases seems to be that, when the memory is impaired to a certain degree, the loss of it extends backwards to some event or period, by which a particularly deep impression has been made upon the mind."

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IN "Called Back" this principle is no doubt represented faithfully enough, in so far as loss of memory, caused by the event above-named, is supposed to have occurred. The dramatists, however, have not so clearly rested on physiological grounds, in their delineation of the subsequent recall of the memory-powers by a second mental shock; and in the heroine's apparent loss of memory for events which occurred before the assassination of her brother. Just before the passage quoted from Dr. Abercrombie, by the authors of "Called Back," that eminent authority gives the case of a lady who, after a protracted illness, "lost the recollection of a period of about ten or twelve years, but spoke with perfect consistency of things as they stood before that time."

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WE have seen (see HEALTH, No. 58, p. 82) that injury to the head may cause, for a time, a complete loss of memory for events immediately preceding the accident. The heroine in "Called Back," however, not merely loses recollection of every detail of her life after witnessing her brother's death, but recollects nothing of the previous relations which subsisted between her lover and herself. It would be interesting to know if the authors of "Called Back" have any exact authority for the interesting *denouement* of their play, in which the mental powers of the heroine are suddenly restored after a second period of excitement. The drama forms such an interesting physiological study—apart from its strong everyday interest—that it would be satisfactory to learn its accuracy as a scientific picture of mental changes and experiences. The condition of the heroine, as depicted by Miss Lingard, appeared to us to resemble more closely a full and perfect study of the insanity produced by a severe mental strain than the mere loss of memory to which the authors evidently point by their quotation from Dr. Abercrombie.

Dr. Clark, of Glasgow, has been making a series of investigations into the composition of the tobacco ordinarily consumed by the public. As the result of his investigations, conducted on samples purchased in Glasgow, Dr. Clark found that an excessive amount of water is contained in tobacco—the cheapest and lowest quality of cut tobacco giving 50 per cent. of water. The opinion that this excessive amount of water is introduced as an adulteration, is one which seems to have reason on its side. Dr. Clark thinks this adulteration is the result of keen competition and low prices. He adds that it is very desirable that some limit should be set to the amount of water which may be added to tobacco.

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As regards cigars, Dr. Clark found these to contain usually from 10 to 12 per cent. of water. Snuff-takers will not rejoice to hear that in many cases five per cent. of *sand* formed the most common adulteration of their favourite powder. In some cases, the quantity of sand exceeded 10 per cent.; and in one case it rose to over 30 per cent. "Sanding" sugar has long been a byeword regarding trade-adulteration; but the practice of "sanding snuff" opens up a new view of "ways that are dark, and tricks that are vain." That nose-troubles in snuff-takers may be caused by the irritation of sand particles, is, of course, by no means an unlikely supposition.

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We read of a Glasgow family exhibiting symptoms of poisoning after partaking of curds and cream, and of a death at Wolverhampton attributed to a repast of tinned salmon. In the former case, it is possible that the milk may have acquired injurious properties through being storod in metallic vessels, or the fluid may have absorbed injurious matter apart from the question of its storage altogether. People cannot be too careful, especially in summer weather, regarding the manner in which milk is treated in the household. It should never be kept in metal vessels, and should never be allowed to remain near closets, sinks, or other places where it is liable to contamination from sewage-gases. No fluid more readily absorbs deleterious matter than milk; and yet in many instances, the family milk-supply is kept in places where such contamination is most likely to occur. In the case of the alleged death from eating tinned salmon, the medical evidence asserted that the poison was of animal and not of metallic nature. Even if this opinion be correct, it should be borne in mind that tinned meats, which may be harmless when freshly opened, are liable to acquire poisonous properties through being kept, and from chemical action occurring between the preserved substance and the tin.

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The twelfth annual report of the Local Government Board has just come to hand. One of the most interesting papers therein contained is the report of Mr. Shirley F. Murphy "On the Operations of the Animal Vaccine Establishment," in Lamb's Conduit-street, London. Mr. Murphy's conclusion is given as follows:—"It may be repeated that, judged by the experience gained during the first year's operations at the Animal Vaccine Establishment, animal lymph 'takes' with as much certainty as humanised lymph, and produces similar local and constitutional effects." Anti-vaccinators should note this conclusion, and remember that safe and efficient vaccination direct from the calf is perfectly possible; the risk of diseased conditions being imparted by vaccination being thus obviated.

Original Essays

"Life is not to live, but to be well."—*Martial.*

ILLUSIONS OF MEMORY.

By Dr. Andrew Wilson.

In our last article we alluded to those curious cases in which the idea of past familiarity with apparently unknown scenes or details arises in the mind when brought face to face with the scenes or events in question. Such instances are called "illusions" of memory. A person visits a place for the first time. "When," he asks himself, "have I seen this before?" and although, as far as all his knowledge is concerned, he has never been face to face with the objects or events, a strong sense of recollection is present in his mind.

Professor Osborn relates, in the *North American Review* for May, an interesting incident of this kind, connected with Hawthorne's life.

"During his Consulship in England, Hawthorne was travelling near Oxford, and while visiting Stanton Harcourt had a curious psychological experience, which he describes in 'Our Old Home.' Nothing about this locality interested him more than the kitchen of the ancient castle. Behind a hearth 30 ft. square there were two huge fireplaces, used in olden times for roasting oxen whole, while the smoke found its way through great holes in the roof 70 ft. above. This room is one vast chimney, the rough interior walls blackened with the smoke and soot of centuries, and lighted only from the apertures above. 'Now, the place,' writes Hawthorne, 'being without a parallel in England, and therefore necessarily beyond the experience of an American, it is somewhat remarkable that while we stood gazing at the kitchen I was haunted and perplexed by an idea that somewhere or other I had seen just this strange spectacle before. The height, the blackness, the dismal void before my eyes, seemed as familiar as the decorous neatness of my grandmother's kitchen.'"

Here a "memory illusion" was apparently present to the mind. The explanation, however, was soon forthcoming, and it is of highly instructive character, as bearing on the fact that the consciousness of past events and the recollections of things heard, are by no means always represented to the mind later on, in their true light. It appears that in a letter of Pope's, addressed to the Duke of Buckingham, there is contained an account of Stanton Harcourt, where, says Hawthorne, "he resided while translating part of the 'Iliad.' It is one of the most admirable pieces of description in the language. . . . . And, among other rooms, he dashes off the grim aspect of the kitchen. This letter, and others relative to his abode here, were very familiar to my earlier reading, and remaining still fresh at the bottom of my memory, caused the weird and ghostly sensation that came over me." Here, then, a train of ideas was suggested by a fact long since forgotten. The sense of familiarity constituted an "illusion," only so long as the primary facts remained unremembered.

There seems no doubt that in different individuals these "illusions" of memory are much more frequent than in others. It is probable that they vary greatly as regards subjects also. One person has suggested to him past familiarity with persons, another with sounds, a third with places, and so on. There is equal proof that the "illusions" to which we allude, also differ greatly as regards

the periods at which they are aroused. The sense of familiarity with an apparently unknown place may arise shortly after the suggestion or reality which gives rise to it has been experienced; at other times the "illusion" is awakened, as in Hawthorne's case, after a prolonged interval.

Discussing now the causes of these "illusions," we have seen that various writers have attributed widely-different meanings to their occurrence. The ancients (Plato, for example) imagined that they were reproductions of events which had occurred in another and previous state of existence. Another and modern view holds that the brain-hemispheres (or halves), which ordinarily work together, are liable to get thrown out of gear, and thus, acting irregularly, give a double meaning, as it were, to what is really a single memory and event. Possibly the true explanation is to be found in the less theoretical arena of common sense as applied to the memory and its ways of working. If we can imagine memory to consist of a connected chain of events or ideas, and that certain of the ideas are less distinctly present than others—that certain links in the chain are lost, or cannot for the moment be supplied—we may arrive at a rational enough explanation of the "illusions" which have given rise to so much speculation and comment.

Cases which support this belief are numerous. If we remember distinctly, the steps or links of association (say, 1, 2, 3, and 4) which constitute a full memory, idea, or recollection, there is exact consciousness, or complete knowledge, of the detail in question. But if only 2 and 3 are remembered, 1 and 4 being lost, or for the time mislaid in the mental operations, an "illusion" is apt to result. The connecting links with past and present experiences being severed, we feel dimly conscious of familiarity with the objects or facts, but are unable to localize them fully and completely. A case illustrating this argument was given in our last paper. An allied instance is related by Dr. Carpenter in his "Mental Physiology." A gentleman visiting Pevensey Castle was oppressed with a sense of familiarity, although he regarded the scene as new. The gateway appeared familiar, and he seemed "to see, not only the gateway itself, but donkeys beneath the arch and people on top of it." On inquiry, he found that he had been taken to the place in the pannier of a donkey when he was only eighteen months old, and that while the elders of the party had held a picnic on the roof of the arch, he had been left below with the attendants and their animals. Another case covers the same ground. A gentleman, travelling in Missouri, had the impression that one of the battle-grounds of the Civil war was familiar to him. He had no recollection of having visited the spot before; yet he was informed by his parents that he had been carried when young to the spot in question.

Even dreams may complicate the question of memory-illusions, until their true purport and bearing are clearly borne in mind. Persons have dreamt of a certain series of events; the dream has been remembered, and has then been forgotten. Later on, the dreamer finds himself in his waking hours in a place or situation which seems familiar, although he is certain the scene is really new. Then comes remembrance of the dream, and the identification of the vision of the night with the more or less related events of the day. In one case, an elderly lady, dreaming about events which were passing around her, became unable to distinguish between her dream-recollections and her memories of actual occurrences in her waking life. Only after frequent corrections did she become aware of her infirmity, and was able to realise how closely sleep and waking had become related in her history.

As illustrative of the strength of the argument just adduced—namely, that illusion depends on the want of the necessary "links" contained in the chain of ideas forming the original event or thoughts—we may quote a case given by Dr. Abercrombie in his famous work on the "Intellectual Powers." "Walking in the street lately," says Abercrombie, "I met a lady whose face was familiar to me, but whom I could not name. I had at the same time an impression that I ought to have spoken to her, and to have inquired for some relative who had lately been my patient; but, notwithstanding repeated efforts, I could not recognise her, and passed on. Some time after, in passing along the road a few miles from town, my eye caught a cottage, to which I had been taken about six months before to see a gentleman who had been carried into it in a state of insensibility, in consequence of having been thrown from a gig. The sight of the cottage instantly recalled the accident and the gentleman who was the subject of it, and at the same instant the impression that the lady whom I had passed in the manner now mentioned was his wife. In this case no recollection was excited by the sight of the lady, even after repeated and anxious attempts; and I believe I should not have recognised the patient himself had he been along with her, whereas the whole was recalled in an instant by the sight of the cottage."

In this case, as the "cottage" was the first or primary "link" in the chain, and as the lady was an intermediate "link" in the series of circumstances forming the memory, it is by no means wonderful that Dr. Abercrombie's memory refused to perform its work until the initial step in the process was reached. Once attained, this primary stage leads naturally to the others; and it is also tolerably certain that had the circumstances not been resolved into facts, as related, the mere sight of the lady would have been liable to have been classed—standing as it did in the light of a solitary fact—as an "illusion." So far from being "illusions," the cases so classified are merely instances in which our minds fail to reconstruct the original chain of ideas or facts as these occurred in our past waking experience.

THE TRICYCLE, AND ITS RELATIONS TO HEALTH.

By Various Writers.

FIRST PAPER.—THE SEVERAL USES OF TRICYCLING.

By W. J. Spurrier, C.T.C.

The tricycle, it is conclusively proved, forms an immense aid to the preservation and attainment of health; chiefly because it provides an exhilarating, evenly distributed, out-of-doors exercise. When the mind is pleasantly occupied in this exercise, nearly every important muscle in the body is brought into gentle play; the blood circulates more rapidly, and the heart and lungs are brought into more vigorous, yet not excessive, action. The exercise being in the open air, its stimulating effects are felt in every nerve and muscle, and the result is a glorious sense of power, so well known to those who have experienced the delights of a morning spin over a country road.

The tricycle must truly be classed as one of the greatest of modern wonders, for never was there known so rapid a

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spread of a new invention, or so eager an acceptance of a new element in human progress. It must not be forgotten that this machine owes much of its rapid rise into popularity to its forerunner, the bicycle. All the leading features in its construction were developed in the narrow-gauge machine. Among the claims to be advanced in favour of the tricycle being a modern wonder are, that it adds from 100 to 500 per cent. to the power of locomotion of either sex; enabling us in this age of worry and speedy communication, to keep pace with the times and to still enjoy the exercise necessary to make every individual healthy. It is worry in conjunction with a sedentary life, which physicians declare form the cause of many of our modern diseases; and there is no doubt that the tricycle, judiciously used, becomes not only an excellent preserver of health, and an aid to the curing of numerous slight ailments, but also prevents the development of disease, and adds greatly to the strength of the individual frame.

As Dr. Richardson says:—"To the human family the art of cycling is the bestowal of a new faculty. I am not an accomplished cyclist, yet I find that by means of the simple machine, the tricycle, facility of progression by my own muscular powers is fairly doubled, while half the weariness incident to progression on foot is saved. If I walk ten miles in three hours—a fair pace—I am tired: my ankles feel weak, my feet sore, my muscles weary; so that after the effort I am unfitted for any mental work until recruited by a long rest. If I go the same distance on the tricycle on the same kind of road, I find that an hour and a half is the fullest time required for the distance, and when the distance is finished, instead of feeling a sense of fatigue, instead of being ankle-wearied and foot-sore, I am agreeably refreshed by the exercise, and ready for study or other mental occupation.

"In the earlier periods of my professional career, riding on horseback was a necessary part of the daily life. I had learned before then to ride without a saddle and to become habituated to all paces, and until very lately I have kept up horse exercise from the love of it, so that still, with a little renewed training, I can take a ride on horseback of five-and-twenty miles, without excessive fatigue. But I would much rather be forced to ride forty miles on a tricycle, if the riding were a matter of choice, and the question of fatigue the point that determined the choice. This personal knowledge is tendered because it is the most practical, in support of the statement that the art of cycling confers on those who learn it a new faculty of locomotion. It is intended to be a modest proof of the statement; for, if I were to follow it up by the record of what accomplished cyclists have achieved, it might be proved that two or more faculties had been added, and that when a man can wheel himself at the rate of twenty miles an hour, and a woman can wheel herself a hundred miles a day, there is found a new machinery in the human body itself—a new set of muscles almost, a new skeleton leverage, a new kind of volition."

These are some of the advantages to be derived from tricycle riding, and they constitute a good ground for public consideration; but when they are supplemented by other almost equally important achievements, the claim of the cycle as a modern wonder is certainly made good. To enthusiastic riders, so numerous are these advantages, that they cannot imagine any one sceptical enough to question them. The uninitiated should consider that cycling has originated a new manufacture, a new sport, a new recreation, and a new literature. Even the inconstant "Fashion" is attacked, for cycling cannot be enjoyed unless the dress of the rider is in accord with hygienic requirements. Should any doubt still linger in the mind of the reader, some of the principal performances upon, and changes caused by, tricycles may be here related. The marvellous distance of 221½ miles has been ridden within twenty-four consecutive hours upon the tricycle, the course being from Birmingham to Cambridge and back. The rider was far from being exhausted, for after partaking of some refreshment he again mounted his machine and rode some six miles home. Other records for the tricycle give us respectively one mile in three minutes and five seconds; ten miles under thirty-three minutes, and one hundred miles under seven and a-half hours. But as regards regular riding and ordinary locomotion, some find it easier to ride ten miles than to walk two miles; and eight miles per hour is certainly a pace that most can attain.

The manufacture of these machines has become a very important branch of industry. Many thousands of persons are employed in the production of tens of thousands of machines per annum, one manufactory alone turning out as many as 200 to 300 machines weekly. As cyclists became numerous, their sport made itself felt as a social power in our midst, and what *was* a sport has now developed into a national institution. A new literature became necessary, and soon attained prominence. Thus there are five weekly papers and a handsome monthly magazine, entirely devoted to cycling, published in England. Then in America there exist some four weekly periodicals and one monthly magazine—the *Wheelman*. The latter is of the very highest class, both as regards the literature and illustrations. An English edition is now published in London; and several cycling papers are issued in the Colonies and on the Continent. In addition to these magazines there are numerous annuals and hand-books devoted to cycling. Amongst those well suited to the requirements of cyclists are the "Tourists' Guide," the "Cyclos' Guide-Routes and Maps," and the "Cyclists' and Tourists' Handbook, with Guide-Routes," showing the cyclist the best roads from place to place.

As a preliminary to enjoyable and healthy tricycling, dress certainly stands in the front rank. Dress for cycling, as will hereafter be duly noted, must be both suitable as regards the exercise and perfectly comfortable, giving the greatest freedom of movement. There is no one pursuit that embraces such a wide sphere of healthy exercise, both of body and mind, and is so pre-eminently an art worthy of adoption by the most intellectual classes of society, as tricycling. This being the case, those who delay becoming cyclists are losing the greatest enjoyment, and missing a fine means of healthy exercise. Regarding the estimation in which the tricycle is held by society, it has only to be mentioned that large numbers, particularly of tricycles, are used by the highest as well as by the humbler grades of society. As regards utility, it is found that clergymen, medical practitioners, business men, messengers of all kinds, and even postmen, policemen, and firemen, use bicycles and tricycles in their ordinary occupations as the best and most handy means of transport.

It is true that the modern tricycle has only been in existence for about six years. While the great perfection of its manufacture, and the beauty of its construction, together

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Sanitary Inspections.—Fee for Survey and Report, in London, 2 Guineas. Estimate given and Improvement Works carried out when required.—The Sanitary Engineering Co., 115, Victoria-street, Westminster, S.W.—[Advt.]

with its admirable performances as a machine, have been the principal factors in bringing about its popularity, it is truly wonderful that fifty to sixty pounds weight of material, can be made to perform such an enormous amount of work as that to be obtained from a tricycle of such light construction. But it must be borne in mind that it is only the most expert riders who can successfully manipulate a machine of this weight. For ordinary purposes a machine of seventy to eighty pounds is *light*, even ninety to one hundred pounds not being excessive. The great point in reference to weight is, that the machine must be constructed to carry the rider (of whatever weight) with safety.

Tricycles are now manufactured in all imaginable forms and for numerous special purposes. Of single machines, *i.e.*, for one rider, there are a great variety, some 200 in all, such as: for ladies, for gentlemen, for carrying parcels, for light riders, for heavy riders, for invalids, for racing, and for expert riders (semi-racers). Then, as regards stowability, they are made to fold, to telescope, or to take to pieces for facility of packing; and for two riders there are Sociables and Tandems, of several forms, some of which are convertible, *i.e.*, one seat and its concomitant parts are removable so that a single machine is formed when desired, and in others an extra seat, or even two may be added, so that three or four riders may mount one machine.

The Tricycle is eminently suited for ladies' use, and is a step towards the emancipation of woman from her usually too inactive in-door life. It really offers an unmixed good, enabling ladies to pay visits, transact their shopping and marketing, and take enjoyable exercise at the same time.

In hay fever, for the relief of the irritation of the eyes, frequent bathing with very cold water is sometimes useful, though Roberts appears to have found more benefit from warm and slightly salt water. Sulphate of copper (two grains to one ounce) or sulphate of zinc (two grains to one ounce) may sometimes do good, but I have found a lotion containing two grains of acetate of lead with two drops of dilute acetic acid in an ounce of water, the most soothing application. Sedative eye-lotions occasionally allay the irritation; for this purpose a small quantity of a solution of acetate of morphia (one to three grains to an ounce) may be dropped into the eyes when they begin to itch.—*Dr. Mackenzie.*

Ventilation and Double Windows.—The chief object of the double window is, of course, to provide an open space for warmer air than that outside, the same for which double walls are constructed—air being a bad conductor of heat. With a single window, the air in a room is more or less constantly coming in contact with the cold glass, and is thus rapidly cooled, keeping the room colder without the benefit of fresh air, or any change of air. To get the full benefit of a second glazed sash, it should fit very closely, in order to exclude as much of the outer air as possible from the space between it and the inner sash, that the air in the space may be kept partially warmed. For ventilating purposes, instead of an opening through the outer sash, to be opened or shut at will, there should be a sort of short tube, the size of the opening, leading from the outer through the inner sash, so that the fresh air coming in shall not get into the apace but be conveyed directly into the room. This should be left constantly more or less open, and should properly be at the upper instead of the lower part of the window. Besides this, for occasional freer ventilation, as in bed-rooms, the outer sash, or part of it, should be provided with hinges, that it may be opened widely while the lower of the two inner sashes is well raised.

Personal Health

"Be timely wise;
With health all taste of pleasure flies."—*Gay.*

THE ELECTRICAL RESISTANCE OF THE HUMAN BODY.

By Wm. Lant Carpenter, B.A., B.Sc.

Under the above title, a very interesting correspondence has lately appeared in the columns of *Nature*, between the eminent American Physicist, Prof. Dolbear, and Dr. W. H. Stone, so well-known for his admirable work upon this subject (see Health, No. 28, Oct. 19, 1883). A great discrepancy had arisen between the results obtained by these two gentlemen, who were both engaged in endeavouring to determine the amount of the resistance which is offered by the human body to the passage of an electric current. Prof. Dolbear stated that this resistance was very great, or, in other words, that the human body was a very bad conductor of electricity; while Dr. Stone maintained that the body was not nearly so bad a conductor as is usually supposed. In the earlier experiments with telephones, trials were made to ascertain whether speech could be transmitted electrically, not along a wire, but through the body, *i.e.*, when the body replaced a part of the wire circuit, the ends of the wires being held in the dry hands of the experimenter. *Under these conditions* the electrical resistance of the interposed person was found to be as great as that of one of the Atlantic cables! Upon this Professor Dolbear based his results.

A careful perusal of the correspondence referred to above, clearly shows that the difference between Professor Dolbear and Dr. Stone arose from the fact that the former experimented upon a normal or *dry* skin, which is a tolerably good electrical insulator (*i.e.*, does not allow much current to pass through it), while Dr. Stone's results were obtained with skin which had been previously soaked in water, thus rendering it a much better conductor. Constant readers of Health will doubtless remember, and occasional readers may with advantage turn to, an article in the issue of Oct. 5, 1883, No. 26, in which the question how far the prolonged soaking of the skin in water influenced its electrical conductivity, was discussed at some length by the present writer, whose own experiments on this subject were then carefully detailed. It was there stated that five minutes' immersion of the skin in salt and water reduced its electrical resistance by 75 per cent., and ten minutes' immersion by more than 80 per cent.; or in other words, that after ten minutes' soaking, five times as much current passed as when the skin was dry, the same source of electricity being employed in both cases. It is clear, therefore, that the *skin-resistance* is a most, perhaps *the* most, important factor in all applications

Medical and Sanitary Exhibition, 1881.—Award of Merit.—Diabetes. Van Abbott's Gluten Bread, and all other suitable Foods for Diabetic Patients. Dietary Tables and Price Lists post-free on application. Van Abbott, 5, Princes-street, Cavendish-square, W.—Delicate Children and Adults Suffering from Nervous Depression. Van Abbott's Hypophosphite of Lime Biscuits, for Delicate Children, especially those suffering from Deficiency of Bone, Weak Joints, or Debility, and Adults suffering from Nervous Depression. Each Biscuit contains five grains of the Hypophosphite of Lime. "Quite free from disagreeable taste, and taken willingly by Children, and certainly provide an excellent means of administering this valuable compound. Our analysis proves the accuracy of the printed descriptions on the labels of the boxes. The Biscuits were suggested by Mr. W. Adams, of the Orthopædic and Great Northern Hospitals." — *Lancet*, Nov. 4, 1876.—Van Abbott, 5, Princes-street, Cavendish-square.—[Advt.]

of electricity to the human body, whether for medical purposes, or in the way of scientific research.

Moreover, the enormous difference in electric conductivity between a dry and a wet skin goes far to explain the hitherto mysterious deaths from the accidental passage of a strong current. Electric light wires which might be handled with impunity in the naked fingers, if the skin were dry, would send a most severe current (possibly a fatal one) through the same operator if he had lately washed his hands, or were strongly perspiring. A few weeks ago the writer was asked by one of the chief electricians of an electric light company, why, on a recent occasion, when handling wires which he was constantly in the habit of manipulating with impunity, on taking them up on one occasion he suddenly received most severe and unexpected shocks. A short conversation elicited the fact that for a couple of hours previously, the electrician had been experimenting with secondary batteries, and that his hands were partially soaked in, and moistened with, weak sulphuric acid, hence the skin had become a good conductor, which allowed plenty of electricity to pass; its normal condition being that of a bad one, which in great measure prevented the electricity from passing from the wires into his body.

In conclusion, it is gratifying to be able to announce, on the authority of the President of the Society of Telegraph Engineers, &c., that on July 3, an electrical conference will be held at the Health Exhibition, at which, among other communications to be read and discussed, there will be one upon the subject of this paper, by Dr. W. H. Stone.

Disinfecting the Air.—Dr. Lee writes to a contemporary as follows:—"The chief point of practical interest contained in my remarks was the fact that carbolic acid, when combined with water and boiled, evaporates with the steam in a constant ratio, and that the steam contains the same relative quantity of the acid as the water from which it evaporates. This valuable fact is not yet familiar to many, and its importance not yet appreciated. Dr. Piesse and Mr. C. Johnston have taken much trouble in determining exactly, as far as chemical analysis allows, the accuracy of this statement. Carbolic acid resembles hydrochloric acid, which, I believe, evaporates equally with water when boiled with it. The reason why carbolic acid was mentioned, and not sanitas oil, or any other substance was because, as far as I am aware, it is the only antiseptic agent that possesses the peculiar property above described. There is no doubt that sanitas is an agreeable and valuable disinfectant; but Mr. Kingzett will find that when boiled with water it resembles pine-oil, benzoic acid, thymol, and some other oils, in coming off rapidly and not equally from boiling water. It can be diffused in the atmosphere of a room when thus boiled, and it is certainly more agreeable than carbolic acid; but for the treatment of a case of phthisis, diphtheria, or whooping-cough it cannot be used with the same accuracy as carbolic acid. By mixing a part of that acid with eighty or a hundred of water, we can obtain a vapour of the same strength, and thus we can vary the strength of the vapour exactly as we can vary the strength of a solution." Regarding the oil of sanitas, Dr. Lee adds that it "is readily diffused, as Mr. Kingzett states, by boiling it with water. At the time I communicated to the Sussex District of the South-Eastern Branch of our Association my experiments in atmospheric disinfection, my attention had not been directed to this fact stated by Mr. Kingzett; but since then I have satisfied myself that sanitas oil may be used with advantage as a disinfectant."

The Family Circle

"The child is father of the man."—*Wordsworth.*
"In bringing up a child, think of its old age."—*Joubert.*

VEGETARIAN DISHES.

By Mrs. Thwaites.

The general idea regarding vegetarian foods is that vegetarians live on potatoes, cabbages, and carrots. Yet very excellent dinners may be served from which meat is altogether excluded. There can be no doubt whatever that such cookery is on the increase, and is, in many cases, conducive to health. People living in the country who have large gardens can have, through the summer months, an endless variety of dainty dishes from their own gardens, to say nothing of maccaroni, rice, semolina, &c. The most important thing with regard to vegetables is their freshness. To have vegetables gathered and cooked at once is a luxury to be appreciated.

Spring Vegetable Soup.—Two or three fresh lettuces, half-a-pint of green peas, a sprig of mint, and any other young vegetables in season. Wash and shred them, put into a saucepan, with a teaspoonful of salt, one of sugar, one and a half ounce of butter; cover the pan and steam the vegetables ten minutes; pour one and a half-pint of boiling water over, boil with the cover open until the vegetables are all soft, rub them through a seive, and mix smoothly with the water in which they were boiled. Mix one ounce of flour with one-third of a pint of milk, add it to the soup, and boil up, stirring all the time. Two or three tablespoonfuls of cream put in as the soup goes to table improve it.

Stewed Green Peas.—One pint of freshly-gathered and shelled peas. Have ready one quart of boiling water, to which has been added one teaspoonful of salt, and three-quarters of a teaspoonful of white sugar; put in the peas, keep the cover open, boil slowly, till the peas are three-quarters cooked. Strain off the water, and put into the pan, with the peas, one ounce of butter, a little salt and pepper, one mint leaf chopped, and three or four tablespoonfuls of boiling water. Sprinkle in half-a-teaspoonful of flour, stir gently, cover the pan, and set by a slow heat until the peas are quite soft, but not broken.

Spinach.—Wash and pick about 4 lb. of freshly-gathered spinach. It should be thrown first into a vessel holding enough cold water to cover it; let it stand for a quarter of an hour; then pick the leaves, and remove all the thick fibrous stalks. When picked and drained, have ready a large pan; fill it, and put in a teaspoonful of salt, and the same of sugar; cover the pan, and set to cook, taking care it does not burn. As it sinks in the pan add more, until it is all in; then leave the cover open, and cook until it is quite soft. If overcooked, the colour is spoiled. Put it on to the back of a wire sieve, and press well. Next chop it on a board as fine as possible; put it into a small saucepan; add a little salt and pepper, a pinch of nutmeg, one ounce of butter, half-ounce of flour; stir over a moderate heat until it is thoroughly hot, and then the flour is cooked. Butter a few small cups lightly, put the spinach into them, taking care that it is well pressed down, set them in hot water for a few minutes, turn out, slightly press in the top of each to make a hollow, poach some eggs, lightly brown them, and place one on each mound of spinach.

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Small three-cornered pieces of bread toasted or fried in a little butter should be placed round each.

Maccaroni-pie.—Throw quarter pound of maccaroni into a pan of boiling salted water, and boil five minutes, strain away the water, and add fresh, with half a teaspoonful of salt, simmer until it is soft, but not broken, turn out on a sieve to drain, and make the following mixture:—Two ounces of butter slightly softened, three ounces stale crumbs, two teaspoonfuls of chopped parsley, quarter teaspoonful of powdered thyme, half teaspoonful salt, quarter ditto pepper, a very little grated lemon rind, beat all up together, put a layer of the maccaroni at the bottom of the dish, then some of the mixture, and so on until the dish is full. Pour milk or water over till nearly up to the brim, and cover with a brown crust. Crust—half pound of brown flour, a pinch of salt, half a teaspoonful of baking powder, and three ounces of butter. Rub the butter lightly into the flour, add enough cold water to make a paste, roll out, put over the fire, trim and brush with egg or milk, bake at once for three-quarters of an hour.

Vegetable Pie.—One pound of potatoes peeled, washed, and cut in quarters, one or two spring onions cut up, a teaspoonful of parsley, two young carrots, two tablespoonfuls of green peas; an equal quantity of French beans, if to be had, may be cut and added, a teaspoonful of salt, one-third of a teaspoonful of pepper, and a pinch of nutmeg; mix all these ingredients in a pie-dish, fill up with water, put about one ounce of butter over, and cover with the above crust, unless one made of white flour be preferred.

Baking-powder.—A good deal is being said just now about baking-powder and its effects. Many of the cheaper kinds sold in poor neighbourhoods are to be condemned without doubt as unwholesome; but there certainly is baking-powder carefully prepared from good materials. Wholesome and good baking-powder is never intended to supersede eggs where they are actually needed for nourishment; but, put pastry, cake, or pudding made with good baking-powder side by side with the same made without, and there can be no hesitation as to which would be the most wholesome. Cheap pastry without baking-powder is heavy, and on the score of both health and economy rich pastry is undesirable. Eggs in puddings are utterly beyond the reach of many people, and at some time of the year they are so stale as to be quite unfit for food; while fresh eggs, except in out-of-the-way country districts, are simply ruinous for cooking purposes. Up to the last few years, carbonate of soda was largely used in cakes and pastry; it leaves an unpleasant taste, and unless neutralised by some acid is unwholesome. The first idea of baking-powder probably arose from the scones common in the North of England and Scotland, in which carbonate of soda was mixed with the flour, and sour-milk or cream to moisten. The acid of sour-milk neutralised the soda, which had then neither taste nor colour, and could not be detected.

The New Tea Tree.—The "Yerba tea" that is now offered as a substitute for China tea is the produce of the Maté plant *Ilex Paraguayensis*, a species of holly, largely used by the people of South America to produce an infusion which is regarded by them as of the highest dietetic value. The plant is not quite hardy, but like the true tea plant of China may be grown very well in a cool greenhouse. Our customary tea is the produce of a shrub allied to the camellia, and the Maté or Yerba tea comes from a near relation of the holly. As the trees differ in outward characters so do the infusion of their leaves differ, for tannin, which abounds in the eastern tea, is not to be found in the western.

Public Health

"Health is the first Wealth."—*Emerson.*

EARTH-BURIAL AND CREMATION.

By A. G. Cobb.

(From the *North American Review.*)

IV.

We have thus far considered the practice of burial entirely from a sanitary standpoint, and the facts resulting from such examination demonstrate the advantages of cremation.

Unpleasant truths connected with inhumation are concealed under a mass of false sentiment; and on more than one occasion when "Unveil thy bosom, faithful tomb," has been sung at funerals, we have been in the perplexed state of mind of "Poor Joe," who, sitting on the steps of the Society for the Propagation of the Gospel in Foreign Parts, wondered what it was all about. It seems to us impossible that a more revolting manner of disposing of the body of a loved friend could be devised than by first freezing it, then encasing it in double coffins, and burying it six feet under the sod, knowing all the while that the grave will soon fill with water, and that worms and putrefaction will pursue their horrible work for years to come.

No amount of gush or sentiment is able to neutralise in the imagination the effect of these ugly facts; and without doubt the dread of death itself is largely increased by the practice of burial. "The mere cessation of existence," said John Stuart Mill, "is no evil to any one; the idea is only formidable through the illusion of imagination, which makes one conceive one's self as if one were alive and feeling one's self dead. What is odious in death is not death itself, but the act of dying, and its lugubrious accompaniments."

The advantages of cremation, and the magnitude and result of the evils of burial, are so well shown by Mr. W. Cave Thomas in his "Social Notes" that we cannot forbear quoting at length from him in this connection. While unfolding the condition of things in Great Britain, his words vividly illustrate the abominations of burial wherever there is a dense population. He says:—

"Cremation insures the purity of the atmosphere and of the springs, both of which are contaminated to a frightful and incalculable extent by the present system of interment, as we shall immediately show. Data shall be given which will put the state of things resulting from this system in its most appalling light. The registered deaths in the United Kingdom for 1874 were 699,747. Taking this as an approximate annual death registry for Great Britain, and allowing ten years for the complete resolution of the body under the present mode of interment—a period, it is believed, considerably below the mark—we have in the kingdom nearly seven millions of dead bodies lying in various stages of decomposition, and giving of noxious exhalations by means of percolation to the atmosphere, and by sending down contaminating matter to the subterranean reservoirs. Calculating for London alone, there

A Valuable Invention.—It is gratifying to learn that Mr. R. Adams, of 17, Blackman-street, London, S.E., whose fanlight-openers and silent door-springs are being extensively used, has received large orders for his Patent Reversible Window. The sashes, although they slide up and down in the usual way, can be instantly turned inside out, enabling anyone to clean each side of the glass with ease, while standing in the room.—[Advt.]

were, in 1872, 76,634 deaths; there are, therefore, at a rough estimate, nearly a million of human bodies festering in its immediate neighbourhood. Fortunately for the springs, some of the cemeteries are on clayey soils, and bodies interred in them are, to a certain extent, locked up in their clay vaults only to be a source of mischief when they are opened. Some of these graves have been described, by one who is bound to know, as "very cesspools of human remains," which give forth their noxious gases whenever broken into for the purpose of some fresh interment, as many a mourner has experienced to his cost. Bodies, on the other hand, which have been buried in sandy soils, are more quickly resolved, say in some six or seven years. Interment in sandy soils, however, are more likely to endanger the health of the living, for by percolation the fluids contaminate the springs, and the foul gases are exhaled into the atmosphere. . . . . It would be a good bargain if we could obtain the adoption of cremation at the price of double fees."

The gases to which Mr. Thomas alludes will rise to the surface through eight or ten feet of gravel, just as coal-gas will do, and there is practically no limit to their power of escape. Mr. Chadwick, after examining some hundreds of witnesses, was of the opinion that entombment in vaults was a more dangerous practice than interment in the earth, because of the liability of the coffins to burst.

In the light of these revelations can we wonder that the neighbourhood of crowded cemeteries has been regarded as unhealthy, or that the mephitic influences of his trade entails on the gravedigger a loss of at least one-third of the natural duration of life and working ability. Realising what burial is, it would seem easy for a confirmed inhumationist to change his belief and agree with Dr. Anelli that burial recalls the Middle Ages, and even the times of barbarism, while cremation represents progress and civilisation.

Let us pass to a more pleasant branch of our subject, and consider the remedy for the evils we have spoken of. By means of the modern and scientific method of cremation, the human body, within an hour, can be reduced to a few pounds of white and odourless ashes. There is nothing in the operation that can shock the feelings of the most sensitive, and the process, when thoroughly examined and understood, will be found its own best advocate. "I have stood," says an eye-witness, "before the threshold of the crematory with a faltering heart. . . . . I have trembled at the thought of using fire beside the form of one whom I had loved. But when, in obedience to his own dying request, I saw the door of the cinerator taken down, its rosy light shine forth, and his peaceful form, enrobed in white, laid there at rest amid a loveliness that was simply fascinating to the eye, and without a glimpse of flame, or fire, or coals, or smoke, I said, and say so still, this method, beyond all methods I have seen, is the most pleasing to the senses, the most charming to the imagination, and the most grateful to the memory." Opposition to incineration springs chiefly from ignorance of the manner in which it is carried on; and to remove all misapprehension it cannot be too distinctly stated, that the body *never* rests in flames, while during the entire process there is no fire or smoke, or odour or noise, to grieve in any manner the bereaved. Even the trestle on which the dead glides into the retort does not become heated prior to the body becoming incandescent. The active and consuming agent is simply air, raised to a white heat—a temperature equivalent to two thousand degrees Fahr.; and this, cooled temporarily by the inrushing current on the opening of the door of the retort, causes the interior to assume beautiful vibrating and ruddy tints. One who has lately witnessed it has said: "As we turned away from the incinerator where we had left the body of our friend, it was pleasant to think of him still resting in its rosy light, surrounded and enveloped by what seemed to us as floods of purity." When all is over, nothing remains but a few fragments of calcined bones and delicate white ashes, perfectly pure and odourless. In all candour, is not this a more fitting destiny for the cast-off body, than that it should remain for years "a mass of loathsome and death-bearing putrefaction?"

Scott's Midlothian Oat-Flour.—There is no preparation which can be assimilated with greater facility than such a flour as this. Those who suffer from indigestion might substitute for their ordinary breakfast materials this flour, prepared according to the recipe given by Messrs. Scott and printed on the tins.—Ed. Health.—[Advt.]

The "Boncontour" Stay-Belt and other Orthopædic Apparatus, made by K. R. Schramm, Orthopædic Mechanician, 64, Belmont-street, Chalk Farm-road, London, N.W.—[Advt.]

SEWAGE FARMING AND ITS RESULTS.

It has long been a favourite theory of sanitarians that sewage could be more than made to pay the cost of its collection if used on a farm, but, as a rule, sewage-farms do not pay, especially when irrigation is depended upon. The combined system of sewage and surface-water disposal increases the difficulty.

At Gennevillers, Asnieres, in France, it was shown that the level of the subterranean waters was four mètres below the surface; after sewage-irrigation it rose to two mètres. Cellars only filled with water at an overflow of the Seine, were, after sewage irrigation, always filled.

Constant irrigation kept the ground too cool, and the crops raised came to the market too late to bring good prices. At Berlin, Germany, where a similar system was adopted, better results were obtained, but this was due to the fact that a definite proportion of land—one to every hundred of the population—was required from the corporation of the city; the Spree has again become a potable river. The farm, however, does not pay anywhere near its cost, other than the lessened sewage.

The town of Aylesborough, England, paid a company, which proposed to dispose of sewage by turning it into a dry manure, 1,000 dols. a year; but, although the resulting product was of much value as a manure, still the company's stock is not a paying investment. The town of Bedford, England, has a sewage-farm which was started in 1868. The town contains 19,532 inhabitants.

There is in use the combined system, and, besides the surface water, much water enters the sewer from the River Ouse. The annual loss on this farm is 1,500 dols.; that is, it disposes of the sewage at an annual cost to the town of that amount. The costs for appliances rendered necessary to get rid of the excessive water are 1,750 dols. per annum.; in other words, were it not for the water, the farm would prove in a small degree profitable.

The Pullman farm has more than repaid the interest on its cost and its expenses, and, when the system is more developed, will probably prove profitable, but this will be due to two things:—First, the exclusion of the surface water from the sewage; second, the vicinity of the town to a large market—Chicago.—*Sanitary Engineer.*

Infected Clothing.—It is stated that a large consignment of left-off regimentals from the army of occupation in Egypt was seized by Dr. Collingridge, the Medical Officer of Health for the Port of London, a few days since, and ordered to be thoroughly disinfected before being allowed to pass into the English market. The clothes were in use during the cholera epidemic in Egypt.

Jottings from the Journals

"Th' ingredients of health and long life are
Great temperance, open air,
Easy labour, little care."—*Sir Philip Sidney.*

Alcoholism in Children. — Those philosophers who annually assemble for the moral, social, and hygienic benefit of mankind in general, and in particular for their own mutual admiration and glorification, at the periodic feast of reason and flow of soul provided for them by the Social Science and other similar congresses which now make autumn dreadful, are never weary of expatiating on the moral as well as the physical improvements which, of late years, have been effected in the condition of our population. In reference to this we would crave liberty to say a few words by way of further comment on a case recently alluded to in this journal. We might, however, premise that, in some respects, the advancement thus claimed appears somewhat dubious. For example, at the present time, insanity, as shown by the official reports of the number of registered lunatics now under supervision in England and Scotland, as well as in Ireland, is nearly thrice more prevalent than was the case forty years ago. In the same way, according to a recent writer, the proportion of scrofulous and tuberculous patients has largely increased in the practice of our hospitals. And in both instances the increase thus noticed appears to be to a considerable extent due to the great and increasing prevalence of alcoholism in all classes, in both sexes, and we regret to add at all ages, now coincidently observed. The case under treatment in the Children's Hospital, Upper Temple-street, Dublin, where a boy, barely eight years of age, was recently admitted, suffering from well-marked *delirium a potu*, which nearly eventuated in the unfortunate child's death, might come as a not unfitting text for some observations on the terrible speed of intemperance now too apparent In this instance the young inebriate was hereditarily predisposed to alcoholism. We believe that a full account of the case will probably be published by Dr. More Madden, under whose care the patient was while in hospital, and we will not further dwell on it, but we may add that the recklessness with which intoxicating drinks are supplied to the public, and generally to all who can pay for them, even when, as in this case, their customers are mere children, as well as to persons already drunk when entering the public-house, urgently calls for inquiry and reform on medical as well as moral and social grounds. Very recently we saw three children, the age of the eldest of whom did not exceed ten or eleven years, in different states of intoxication, reeling out of a public-house in one of our principal thoroughfares on a Sunday afternoon; one was unable to stand without the assistance of his companions, another was vomiting at the door of the gin-palace, and all were uttering filthy imprecations, which, under sad circumstances and in the voice of childhood, were to us, not only the most pitiable of sounds, but also the strongest appeal we had ever heard for some legal interference with that unholy traffic of which such were the results.—*Medical Press.*

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Hypnotism.—The curious phenomena collectively designated by the term "hyynotism" have frequently been the subject of popular attention, more especially under the mysterious names of Braidism, Animal Magnetism, and Electro-biology. Hypnotism in a simple form is, as our readers very well know, a very old story. More than two hundred years ago the possibility of "enchanting" a hen by drawing a line before its eyes with a piece of chalk was well known, and was demonstrated to an awe-struck audience by the Jesuit priest Anasthesius Kircher. Possibly, on account of its supposed association with magic, little notice was taken of this remarkable phenomenon until about one hundred years ago, when a Swiss, Anton Mesmer, brought the subject into notoriety in France, and applied it to man. In the earlier half of the present century, Mr. Braid, of Manchester, examined the matter with scientific care, and tried its curative efficacy on his patients in England; but his views met with disfavour, and the question was not taken up by the scientific or the medical world until comparatively recent times, when a number of physiologists attempted to investigate it. Dr. Gerald Yeo, Professor of Physiology at King's College, has recently devoted some attention to the subject. We may briefly summarise the conclusions at which he has so far arrived. It is believed that the corpuscles of the grey matter of the nervous centres are called into activity by special nervous influences, which, like those affecting the muscular and glandular tissues, are associated with changes in nutrition. These nerve-regulating centres are constantly kept alive to the state of the various parts of the body, and accordingly affect the nerve mechanisms belonging to each. When several of the more influential textures are fatigued, the entire frame is made to repose (sleep). In sleep a variety of mental and muscular acts may be performed, if certain tissues or organs remain in a state of activity (somnambulism). Without sleep, in the ordinary sense, the nervous "governors" of certain organs and parts may be thrown out of gear by notice of a special condition of the organ arriving at its nerve-regulating centre. The impulses indicating this condition (fatigue) may be counterfeited by certain variations in quantity or quality of ordinary stimulation. When local psychical arrests are thus produced without real fatigue of the organs, the surplus energy, arriving at the excito-neutral centres, sets up an excessive action of some groups of corpuscles, and thus certain faculties appear exalted in acuteness.—*Lancet.*

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Brain-weights of Distinguished Men:—

Name.	Age.	Ounces.
1. Cuvier, Naturalist	63	64·5
2. Abercrombie, Physician	64	63
3. Schiller, Poet	46	63
4. Goodsir, Anatomist	53	57·5
5. Spurzheim, Physician	56	55·06
6. James Simpson, Physician	59	54
7. Dirichlet, Mathematician	54	53·6
8. De Morny, Statesman	50	53·6
9. Daniel Webster, Statesman	70	53·5
10. Campbell, Lord Chancellor	80	53·5
11. Chauncey Wright, Physician	45	53·5
12. Agassiz, Naturalist	60	53·3
13. Chalmers, Celebrated Preacher	67	53
14. Fuchs, Pathologist	52	52·9
15. De Morgan, Mathematician	73	52·75
16. Gauss, Mathematician	78	52·6
17. Dupuytren, Surgeon	58	50·7
18. Grote, Historian	76	49·75
19. Whewell, Philosopher	71	49
20. Hermann, Philologist	51	47·9
21. Hughes Bennett, Physician	63	47
22. Tiedemann, Anatomist	80	44·2
23. Hausmann, Mineralogist	77	43·2

Scott's Midlothian Oat-Flour.—Messrs. A. & R. Scott, of Kingston, Glasgow, and Finsbury-square, London, have prepared a singularly pure and nutritious "Oat-flour," which bids fair to take high rank among the food products which are specially adapted for infants and invalids, and for the use of dyspeptics in particular, whose digestion is weak, and whose stomachs refuse to assimilate foods of ordinary kind.—Ed. Health.—[Advt.]

Recreation and Health

"Health is the vital principle of bliss,
And Exercise of health."—*Thomson.*

CALISTHENICS, OR LESSONS IN PHYSICAL EDUCATION.

BY H. C. STANDAGE.

ELEVENTH PAPER.—DUMB-BELL EXERCISES (*Continued*).

THE first point to attend to in dumb-bell exercise is to attain flexibility of the wrist. With this object in view, take a bell in each hand and stand at attention, with arms hanging freely by the side, and the knob of the bell pointing to the front and rear; then, without moving the elbows, reverse the bells by a movement of the wrist, so that the knob or bell part touches the thigh.

Similar flexions of the wrist should be gone through while holding the arm out horizontally in front, until they are extended in a line with the shoulders, and, also, when raised by the side of the head, pointing upwards. The point to attend to is to twist the bell about by the muscles of the wrist alone, without moving any other part of the arm.

The practice with the light dumb-bells is chiefly intended to give flexibility to the joints and muscles and strengthen them; and this is best attained by practising with both bells simultaneously. One point to attend to is to let each arm and hand perform the movements precisely alike, and simultaneously; a large amount of the success attending dumb-bell practices is due to simultaneous movements. Never be hurried and never go indolently through the exercises, but let them be performed in equal time, and when the movements are repeated half-a-dozen times or so in succession the time occupied in each movement should be equal.

To render the elbow-joints flexible, stand at "attention," arms close by the side and bent at the elbow, so that each bell is in front of the chest, and the knuckles pressing slightly against each breast. In the first movement, thrust the arms forward, so that they are pointing horizontally from the body to the front; in the second movement, sweep them upwards in a graceful curve, until they are pointing perpendicularly upwards above the head; in the third movement, lower each arm outwards, until they are horizontal and in line with the shoulders. These last two movements are done without moving the elbow-joint. Now, when the arms are in this position, the exercise for the elbows may be gone through. Always go through these three movements, and never raise the arms direct from the sides to the stretched-out horizontal position.

FIRST PRACTICE.—Bend each arm at the elbow — the shoulder-joint not moving—so that each bell touches the shoulder, the knuckles being downwards, and the wrist also being bent so as to allow the bells to touch the shoulders; bend the arms back to their original outstretched position, still only moving at the elbow-joint. Repeat this movement half-a-dozen times successively.

SECOND PRACTICE.—Move the arms alternately so that as one arm is bent for the bell to touch the shoulder, the other arm is thrust out to the horizontal position. To bring the bells to the side again from this position, first raise them above the head, next lower them horizontally in front, and then bring them smartly back to the breast with the upper arm close to the side, and, finally, bending the elbows, lower the arms to the side of the body.

FULL EXTENSION OF THE ARMS.—A variety to this practice is made by swinging the bells into line with the shoulder from the "attention" position. That is, when the knuckles are touching the breast, throw each arm out sideways, and then, bending the elbows, bring them in front of the chest again; repeat six times.

For gaining flexibility over the shoulder joints:—

FIRST PRACTICE.—Stand at "attention," arms in front of the chest. First movement: Thrust out the arms straight to the front, knuckles touching each other, and the bells held perpendicularly. Second movement: Stretch the arms apart as if making a swimming stroke, the bells still held perpendicularly; be careful in thrusting back the arms not to do so with a jerk at the shoulder, but simply stretch them apart until they are in line, and not too severely pressed back. Third movement: Raise the arms above the head, bells pointing to the front and rear. Fourth movement: Lower the bells to the front until the arms are horizontal. Fifth movement: Bring the bells smartly back to the breasts. Be steady, methodical, and simultaneous in all these movements, and repeat the exercise six times in succession.

SECOND PRACTICE.—Hold the bells down by the sides, with the knuckles pointing to the front. First movement: Raise the bells sideways until they are horizontal and in line with the shoulders, bells pointing front and rear. Second movement: Swing them round in front of the chest so that the knuckles touch, and the bells are perpendicular. Third movement: Bring the bells back to the breasts. Fourth movement: Thrust the bells upwards above the head, bells still pointing front and rear. Fifth movement: Lower the bells outwards to the sides, until the arms are horizontal; then, bringing them to the front as in the second movement, repeat the exercise six times. Finish the exercise with the third movement—that of bringing the bells to the breast.

THIRD PRACTICE.—Stand at attention, thumbs pointing outwards and knuckles to the front. From this position raise the bells outwards from the sides in one movement until they meet above the head, and the knobs nearest the thumbs touch each other. Second movement: Swing the arms sidewards and downwards, and let the bells meet behind the back, the knobs nearest to the little fingers touching. The tyro can scarcely accomplish the meeting of the bells in this way behind the back at first; but the difficulty is soon overcome.

This practice is one of the best possible for setting back the shoulders. Any young lady who practises this exercise for ten minutes every morning will never need to wear corsets either for "improving" her figure or supporting her bust, for the muscles of the shoulders and back will be so developed and strengthened as to produce a perfect figure and retain it so. In all exercises with dumb-bells, there is no good to be attained by violent or excessive rapidity of action; each movement, while not being too slow, should be done with deliberation and regard to synchronous movements. There are many other movements that can be done with the bells, but the above (with the additional exercise below) will be sufficient for the purpose of developing the bust, setting back the shoulders, rendering the flesh of arms, neck, and bust healthy, and regulating the breathing. For the latter purpose it is a great aid if the pupil sing some rhythmical tune or call out the numbers as each movement is performed.

EXPERIMENTS made with gases upon insects proved the Colorado beetle hardest of all. It took prussic acid vapour to kill it outright, and was paralysed in illuminating gas.

Our Bookshelf

"Reading maketh a full man."—*Bacon.*

THE PEOPLE'S LIBRARY.

(1) *Thrift and Independence; a Word for Working Men.* By William L. Blackley, M.A.

(2) *The Guild of Good Life; a Narrative of Domestic Health and Economy.* By Benj. Ward Richardson, M.D.

(3) *Biographies of Working Men.* By Grant Allen, B.A.

(London: Society for Promoting Christian Knowledge, 1884.)

Under the title of "The People's Library," the Society for Promoting Christian Knowledge are issuing a series of remarkably cheap books, dealing with various questions of social and sanitary science, and with aspects of biographical nature, well fitted to interest and instruct readers of all classes. The three volumes above noted form excellent examples of books which are calculated "to point a moral and adorn a tale," without in any sense lapsing into mere sentimentalism, and without treating their respective topics in a manner suggestive of school-days and reading-primers. The names of the authors alone are guarantees that the work which has been entrusted to their hands will have been well executed, and that a large amount of solid and useful information has been collated for the instruction and edification of old and young alike. At the outset, therefore, we are bound to wish this handsome series of books a wide sale, and a success commensurate with the excellence of their literary style.

The first-named volume deals with social questions of immense importance; and the Rev. Mr. Blackley is probably the writer best fitted to lay the merits of thrift and providence fully and completely before the public. No one has been more energetic than this author in advocating schemes whereby the principle of "Waste not, want not," may be carried into practical effect. His main contention, that individual providence is a personal, social, and national duty, is fully illustrated throughout the work. He affords his readers a rapid, but highly interesting survey of the various modes and means of saving money—from "funeral money in benefit clubs" and "sick benefit societies," to "building societies" and "Post-Office assurance." After an enumeration of aids to thrift, Mr. Blackley deals with "hindrances to thrift," and, in a concluding part of his essay, treats of "hopes for thrift." His remarks on "national insurance" may specially be commended as a part of this book which every one should peruse with care. There are few manuals which can boast of forming such a trustworthy guide to the economics of thrift as Mr. Blackley's little volume.

Dr. Richardson's volume contributed to this series, deals, as might be expected, with a sanitary topic. The "Guild of Good Life" is an imaginary association, it is true, whose members meet for the purpose of discussing topics bearing upon the preservation and culture of all the means which tend to render life not only worth living, but worth living well. There is no reason, we think with Dr. Richardson, why such a metaphorical "Guild" might not become a real society. It is probable that the "Guild" is not unknown here and there under the shape of associations who, whatever their names and designations, aim at the education of the people in all that pertains to healthy lives. A large amount of useful information regarding foods, cleanliness, care of the young, drainage, drink and strong drink, is dispensed pleasantly by the author in these pages. Dr. Richardson adopts the narrative style in the relation of his facts and views, with the result of rendering the work attractive to many who might otherwise be disposed to regard its topics as lying outside the run of ordinary literary fare.

Mr. Grant Allen had a difficult task before him in writing the "Biographies of Working Men." The lives of such heroes of industry as George Stephenson, John Gibson, Thomas Telford, and President Garfield, have been discussed times without number, in popular biographical memoirs. We may only say here that Mr. Allen has succeeded in conveying well-known facts with wonderful freshness, and has in many cases invested a thread-bare subject with new and interesting lights.

LITERARY JOTTINGS.

Morality; an Essay on Some Points thereof. (Addressed to young men.) By Maurice Charles Hime, LL.D., Headmaster of Foyle College, Londonderry. Seventh Edition. (London: J. & A. Churchill, 1884.)—Dr. Hime deals in this book with matters which require delicate and careful handling, if the purport of their discussion is to be served in any satisfactory way. The author writes with feeling, and in no sense offends; but we cannot avoid the expression of the opinion that his book is too discursive, and deals with too many matters which lie off the straight track of the subject, so to speak, to be at all effective as a guide and counsellor to youth. There can be no objection to quotations from early divines, it is true; but Dr. Hime's extracts are not always to the point, and the reader is continually in danger of missing the gist of the argument through the original idea of the author being overlaid by extraneous matter. We vastly prefer such a book as that by Dr. Pratt, for its sound, practical, clearly-conveyed advice, to the present volume. Dr. Hime's intentions are most laudable; we only regret he has not succeeded in carrying out the spirit of his intents to a successful practical issue.

The Leamington Waters, Chemically, Therapeutically, and Chemically Considered: By Francis W. Smith, M.D., (London: H. K. Lewis, 1884.)—Dr. Smith thinks, and we admit there is cause for the complaint, that Leamington and its waters have not been regarded of late years with the favour they deserve. He has, therefore, written the *brochure* before us, by way of inducing a reconsideration of the claims of that town to the notice of those in search of health, and to the good offices of those members of the medical profession who may be apt to overlook the qualities of Leamington as a health resort. We hardly think it was necessary for Dr. Smith to have enumerated in detail the virtues of each mineral constituent of the Leamington waters. In combination, these agents may, and do, act very differently as compared with their solitary administration. The information given in page 41, that, "the inferior mesenteric vein inosculates with those (*sic*) of the internal iliac, and this establishes a communication between the portal and the general venous system," may be an article of anatomical faith, but assuredly cannot go far to explain to the general reader how and why Leamington saline waters act beneficially in congestions of internal organs. Despite a certain awkwardness of style, and a tendency to discursiveness, Dr. Smith's pamphlet will be found useful by all who meditate a visit to Leamington, and by those who are hesitating regarding the choice of a suitable resort.

Our Letter : Box

"Conference [maketh] a ready man."—*Bacon.*

NOTICES TO CORRESPONDENTS.

All Communications for the Editorial Department (including specimens of Sanitary Appliances, &c.), to be addressed to "THE EDITOR OF HEALTH," 74-76, *Great Queen-street, London, W.C. Those intended for the Publishing Office to be sent to* "THE PUBLISHER," *at the same address.*

LETTERS TO THE EDITOR.

VACCINATION.

SIR,—You invite us to "break a lance with the above facts," given in HEALTH, No. 59, page 108. These supposed facts are that (1) "as is the almost invariable experience elsewhere, the eight deaths from small-pox in Sheffield were unvaccinated persons." The form of expression used in the Medical Officer's Report is not a little curious for the record of a fact. He says, "it would not surprise the committee to hear that the eight deaths in Sheffield were in unvaccinated persons." I do not take this for a positive assertion, and am doing my best to get positive information. But it would very much surprise me, because it is the almost universal experience that the majority of small-pox cases and deaths are of vaccinated people. I think my previous letter shows this. But the following at any rate will make it clear. First, as to the attacks. Taking metropolitan hospitals since 1836, I extract from their reports 49,921 cases of small-pox. Of these, 36,068 were recorded by these reports when admitted to hospital as vaccinated. Here is not a mere majority, but a very large majority out of so great an experience, all of which majority are vaccinated proofs of the folly of compulsion. That settles the question as to attacks. And now as to deaths. I, of course, deal only with the classification made by hospital doctors. And taking only those which are called vaccinated and unvaccinated, and on both sides leaving out ambiguous expressions, there remains 2,788 "vaccinated" small-pox deaths, and 2,063 "unvaccinated" small-pox deaths. Here is a tremendously large experience, and how anyone treating of only eight cases could have declared that the experience was for the unvaccinated to be in the majority is a wonder to me. He cannot be other than ignorant. But I have disposed of the first point, and shown that "facts" are in opposition to it.

Next, we are told that none of the "*re*-vaccinated since childhood" had had small-pox. If we were discussing re-vaccination it might be a question. But we are not. Vaccination is only compelled by law in children of tender years. And if these children at any time of their lives afterwards take small-pox, the law-compelled rite has absolutely failed. I fear it is no use urging that medical men be urged to re-vaccinate, and the re-vaccinated be urged to pay. Have we got to this, that temperance men and teetotallers are to be compelled to drink, and to keep the publican going? The cases are exactly parallel; both would be compelled to act against their conscience.

Then, as to the small-pox in its virulent form, I can assure you, sir, that this aspect of the case is of the very strongest for those who oppose the Jennerian rite.

Keeping to the Metropolitan Hospitals, which give this classification, we find—1871 to 1879—that 486 cases of malignant small-pox occurred in the "vaccinated," and the deaths were from 73 to 100 per cent. That only 167 cases of this class occurred among the "unvaccinated," and the deaths were from 82 to 100 per cent. Thus the great majority of the worst cases again are the vaccinated. I ask you to give this publicity, because probably no one among us has given so large attention to this point as myself. It is therefore conclusive that the points raised from Sheffield are purely fallacious, and the experience of other places shows the gross folly and cruelty of these compulsory laws.—Yours truly, ALEX. WHEELER.

Darlington, May 23, 1884.

[We have received several communications in addition to that of Mr. Wheeler, printed above; but as the writers of these letters merely tell the same tale, with but little variation, and certainly with no new or fresh result, as regards the controversy, we have decided to close the discussion, for the present, at least—both sides, and especially that which Mr. Wheeler represents, having had ample opportunity of ventilating their respective views. Meanwhile, a word in reply to Mr. Wheeler, whose advocacy of principles and tenets with which we do not agree, commands, from its earnest and temperate nature, our sincere respect. We recommended him, firstly, to "break a lance" with the Sheffield facts. As he does not accept the health officer's statement, it is evident he has not followed our advice. When he speaks of vaccinated persons being in the majority as regards small-pox infection, however, he exhibits a want of accustomed care and candour. "Vaccination," everyone admits, is a wide word, and individual constitutions vary beyond human intelligence in respect of the effects of the operation. Hence, when Mr. Wheeler seeks to prove that vaccination is no preventive of small-pox, he forgets to take into account—firstly, the probability that *re-vaccination* is necessary for many persons; and secondly, the equally strong probability that individuals exhibit great variations in their susceptibility to, and in their protection from small-pox by vaccination. No one, so far as we know, maintains that one rule applies to all mankind in this respect. Mr. Wheeler and his allies are therefore only travelling in a very small circle when they speak of small-pox occurring most frequently in "vaccinated" persons. For such a belief there is no foundation in fact. If Mr. Wheeler chooses to assume, what no medical man, as far as we know, assumes—namely, that every vaccination is a successful one, that is Mr. Wheeler's affair; only, so much the worse for his statistics and deductions. Anti-vaccinators are almost invariably wiser (in their own opinion) than physicians who have borne the brunt of small-pox epidemics. Mr. Marson's opinions—formed during a lengthened residence in the Small-pox Hospital, are, of course, as nothing in their eyes. Mr. Goude (Mr. Marson's successor at Highgate) may not be listened to either, by anti-vaccinators, but it is due to the readers of HEALTH that we should point out what the latter says so recently as May 26th, 1884. (*Vide Lancet*, for May 31st, 1884). Mr. Goude shows very clearly that ineffective vaccination and re-vaccination are responsible for small-pox infection in a marked degree. Mr. Wheeler should peruse Mr. Goude's letter, and he will then perhaps be able to understand how cases of small-pox, occurring in "vaccinated" persons (according to Mr. Wheeler and his friends) really occur in cases where vaccination has been ineffectively performed. As regards Mr. Wheeler's contention that *re-vaccination* is not made compulsory by law, he forgets that it is during infancy we require our first and probably (for most persons) the more important protection. It is this protection which is secured by law; and, if re-vaccination, as proved by experience, is necessary in many cases, then we may still hold, with reason on our side, that epidemics of small-pox are very cheaply prevented by such a repetition of the practice of infancy. But for the mistaken earnestness and obvious disinterestedness of Mr. Wheeler and his friends, the anti-vaccination agitation is scarcely worth notice.—ED. H.]

QUERIES AND ANSWERS.

GENERAL.

BALGUS.—The International Exhibition Handbooks should suit you. Almost every health-topic is treated therein.

AJAX.—You evidently mean chloride of lime.

T. O.—(1) From fifty to sixty. (2) Scurvy is a blood disorder. It was known in Pliny's time. It appears to be due to absence of potash salts in the blood, and is cured by fresh vegetables.

CARIB.—You will find Semple's "Diseases of Children" a good book, and one adapted for your wants.

EXCELLENT.—The usual medical course in England is four years; but, as a matter of fact, a student usually spends five years in obtaining his education. Cost varies very much. Fees alone (in Scotland) vary from £90 to £120 or so.

B. G.—Try the classes at the Birkbeck Institute.

CECIL A.—Electric baths are well known, and have been long used for the cure of sciatica and other nervous diseases.

A. L.—Mr. Macbrayne's steamers, sailing from Glasgow and Greenock, place such a tour as you wish within your reach at a cheap rate. Write to 119, Hope-street, Glasgow, for prospectus. Special "boarding terms" are given in some of the northern steamers for the week or voyage.

GEORGE HAY.—Our papers on "Foreign Health Resorts" will be commenced at an early date. The resorts will be treated alphabetically, as the most convenient and least confusing method.

SAILOR.—Cassell's "Family Physician" is the book which will suit you best.

BURTON.—The medicinal leech has three "teeth," the bite being Y-shaped. The stomach is large, and provided with sacs for the reception of blood. There are two distinct species used in medicine. The horse-leech is never employed.

MIDCALDER.—There is no doubt as to the illegality of the proceeding. Refuse payment, if you are wise, and let him endeavour to do his worst.

Halefant.—We do not think the "chambers" are in use in this country; we have not heard of their being used at least. Address your inquiry to the *Lancet*, or *British Medical Journal*, or to the resident physicians at any of the hydropathic establishments. If we can assist you further, we shall be glad to do so.

Veritas (Bacup).—We hardly think the problem can have been fully stated. The size of the room is a necessary item in the calculation, and you do not give this. Otherwise, an approximate calculation could only be given by taking into account the amounts of air exhaled by the persons occupying the room. As the question is given by you, it is very indefinite in its terms.

Zanoni.—The address you ask for is No. 22, Great Tower-street, London, E.C.

SANITARY.

J. C. Baker.—The objections arise from two sources; first, from imperfect flushing; and second, liability to leakage—both are serious nuisances.

Olea.—Yes; Messrs. Calvert and the Sanitas Company both sell a handy vaporizer, which acts beneficially in purifying the air of sick rooms. See "Nature's Hygiene," by Mr. Knigzett (Ballière, Tindall, & Cox) for full information concerning the *modus operandi* of peroxide of hydrogen. The formula for the latter is H_2O_2; that of water is H_2O.

C. E. M.—1. Much depends on the strength of the current. 2. Attend to the insulation. 3. Bichromate cell.

Andrew Grey.—1. By means of a ventilating cowl at the top of the shaft. 2. Banner's system. 3. Discharging over an open gully. 4. "Air space" is between gully and end of pipe.

Harold F.—1. Oil inunction to the body acts simply by preventing the drying and dispersion in the air of the skin scales, which, in small-pox and scarlet fever, carry the poison of those diseases. 2. There could be no objection to adding a small percentage of carbolic acid to the Vaseline. 3. A "Sanitas" ointment is sold by the company.

B. A.—1. The date is 1859. 2. No; not at present.

MEDICAL.

Cyneus.—You are clearly overworked, and require rest and tonics. Take a teaspoonful of Fellows' Syrup of the Hypophosphites thrice daily in a wine-glass of water an hour before meals. Go to the seaside and rest for a time. You will never be well so long as you persist in overworking yourself.

Wallace.—Look to your digestion. Rest after food is especially necessary in your case. Take Pepsine or Murdoch's Digestive Powder with your food, and avoid tea, coffee, and stimulants. You should also guard against chills. If not bettered, write again. Symptoms are all digestive in their origin.

J. Baxter.—1. There is no danger, so far as we can see. 2. About 20 per cent. 3. The Carbolic Vaporiser, price 1s. 6d., of Messrs. Calvert, would suit your purpose admirably.

Aigburth.—About ten grains taken twice daily is the usual dose.

Suffering Will.—1. See that you rest after food. Your symptoms arise from indigestion, and this may be at the root of all your troubles. Avoid vegetables, tea, and coffee. Let your food be light, and take milk, light puddings, and beef essences for a time, with Pepsine after meals. The rest after meals is absolutely essential for your recovery. 2. What you name is often a consequence of disordered digestion. Take the mixture recommended in Health, No. 59, to "Mary May." This may remove the symptoms which distress you. 3. The joint-pains are mostly muscular, and arise from your low state of health. Let us hear how you are after following this advice. Enclose stamped-addressed envelope if you wish address of physician.

Brussels.—1. The pamphlet you enclosed is that of a well-known quack. We need say no more on this head. We think you are treating yourself quite properly. Persevere with cold sponging and open-air exercise, avoid suppers, and take the tonic twice daily for a little time. You will get quite well by attending to these directions. 2. Don't use a hard brush to the hair. Use a little of Cleaver's Terebene Cream for the hair each day.

W. O.—See and follow advice to "J. Edward," in No. 59, Health. Above all, be cheerful, and you will get quite well in a little time.

Blacksmith.—As you do not mention the nature of the symptoms for which treatment was given, we cannot reply definitely to your question. All we can affirm is that all the troubles may very well arise from a slight internal cause, which a competent physician can alone discover. It is possible a little displacement may exist. If you send a stamped-addressed envelope, we shall be glad to send you the name of a competent physician in London. Treatment would probably be simple, and capable of being carried out at home.

John D.—What you took to be "a piece of a vein" was merely clotted blood; and the persistent bleeding, we fancy, was probably associated with some weakness of the hinder nostril, such as that you complain of. Our advice to you is to have your mouth and nose thoroughly examined at a hospital or by some competent surgeon. It is probable that some simple application (such, however, as a surgeon alone can apply) will prevent any recurrence of the bleeding. If desired, we can send you address of a London surgeon, on receipt of stamped-addressed envelope.

Victor.—Persevere in the methods of bracing up your general health, and take your thoughts off the subject you formerly wrote about. Your present sensitiveness is due to nervous irregularity, which will disappear by attention to general habits. Don't overdo your exercise, however. There is no need for you to begin at 6 a.m., especially if you have your ordinary work through the day. Overdoing exercise is probably the cause of your nervous symptoms.

B. M. B.—If you suffered from the disease you name, you could not have been so readily and speedily cured. You probably suffered from a mild form of the ailment; but we should advise you, in any case, to see a surgeon, who alone, by examination, can satisfy you regarding your state. We need hardly add that strict temperance must form part of your cure in any case.

J. R. D.—You might try the effect of hot oil or Vaseline rubbed into the arm each night. Try the cold-water douche to the arm twice or thrice daily. You have simply suffered from muscular strain. If the cold douche alone does not do good, try dashing hot and cold water alternately over the strained part.

Liwson.—A change of air would do you good; and you should try ten drops of *Fer Bravais*, thrice daily in water, and an hour before food. Are you overworked? Your symptoms denote that you require rest, and this, with change of air, would probably cure you.

Mrs. Rose.—Try the following, and let us hear the result:—Carbonate of ammonia, one drachm; bicarbonate of potass, a drachm and a half; infusion of chiretta, six ounces. A tablespoonful thrice daily before food.

Etna.—Give up such a foolish thought as that which would attribute your symptoms to the cause you name. You illustrate one of those many cases in which persons have been made miserable by reading (and believing) the nonsense written by quacks. See and follow advice given to "J. Edwards," in Health, No. 59. You only require attention to common health-details to make you feel perfectly well.

J. H.—[In future, please send your queries in separate envelope to Editor.] We think that in young children the hair should always be cut short. Many children grow restless and do not sleep well at night through their hair being allowed to remain long.

Cambria.—So far as we can see, there are no grounds for your fears. If a medical examination would comfort your mind, we can send you the address of a physician on receipt of stamped-addressed envelope; but, if you take our advice, you will simply attend to your general health, and keep your mind quite easy. Under no circumstances would it be permissible or advisable for you to mention the matter in the quarter you name.

Desideratum.—1. Foul breath arises from bad teeth and bad digestion. See to your teeth; use camphorated chalk morning and night as a tooth-powder; and attend to your digestion. Bragg's Charcoal Biscuits might occasionally be eaten. 2. Never use a pin or wire in any way in connection with your ear. You are almost certain to injure the drum. If you have suffered from scarlet-fever, the ear-trouble might be readily explained. See an ear-surgeon, and take for a short time the tonic recommended to "Albus," in Health No. 59, as calculated to brace up your system. 3. The person you name is an advertising quack. Would you oblige us (in confidence) by telling us what remedy was prescribed you by this person, how you were treated, and by whom?

Ignis.—The following are our replies:—1. The difference merely consists in the nature of the functions themselves—just as those of the heart differ from those of the liver or spleen. 2. Because the function you name is not intended to be exercised until maturity is attained, and for its own and given end. 3. Impossible to reply fully to this query. Generally, it may be said, that it is most active (though by no means always so) in those of robust health. Whatever tends to improve the general health will also tend to make these functions readily performed. 4. As in all other cases, wise guidance—mental and physical—judicious work, free exercise, healthy mental employment, and plain fare are the safest conditions.

Irishman.—We should strongly recommend you to rest after your meals. You will never be well if you rush off immediately after dinner to business. It is probable that small doses (say, a dessert-spoonful) of cod liver oil emulsion after breakfast and dinner would better the condition of which you complain.

S. E. M. A. J.—We only send addresses of surgeons and physicians by post when a stamped-addressed envelope is forwarded to us.

Presto.—1. If you mean that you go a week without washing, you will excuse us for saying that you must be of uncleanly habits, and that soap and water used daily are the plain remedies for your ailment. 2. Attend to your general health, and give up brooding over such matters.

R. P. C.—You mistake the nature of the secretion in question. It is not what you suppose, and is of no consequence. Try cold sponging, out-door exercise, and non-stimulating diet as correctives. Mental employment, as you must know, is an all-important item in such cases. Your remark in postscript applies only to certain cases—not to all. Glad our advice has done good.

T. Cook.—Try the effect of a vegetable diet—stewed fruit, apples, prunes, &c.—avoid tea and coffee. A tumblerful of cold water taken first thing on rising in the morning should also be tried. If not bettered, write again.

Metropole.—We should advise you to avoid dyes altogether. Give Rowland's Macassar Oil a trial; and, if not satisfied, write again. Possibly shaving completely, for a time, would benefit you.

Vox Delecta.—We think your confinement to a warehouse is against you. You get too little fresh air, and your work is possibly heavy. Our advice to you is lighter employment, if you can obtain it, and more open-air exercise. It is possible you might benefit from taking ten drops *Fer Bravais* in water, thrice daily. In your case, constipation is specially to be avoided, of course. Glad to be of any further service. You might benefit from a bracing sea air.

J. R.—Send fuller particulars of your health and habits, food, &c. Meanwhile, take hot salt water baths occasionally (use Tidman's Sea Salt and hot water), and let your food be very light—milk, eggs, puddings, soups, &c.—take little solid food, in fact, for a time. Send details as to your work and employment.

Oliver.—We do not think what you complain of has anything to do with your lack of energy. What you name is quite common in healthy persons. We should advise you to continue to see to your general health as you have been doing. Regulate diet, try cold sponging, and take plenty of open-air exercise. A little Æsculap Water, taken in the morning when your bilious attacks threaten, will do good. If the porter agrees with you, by all means continue it.

N. B.—1. Syringe the ear. What you name often arises from an accumulation of wax. 2. We only send addresses of medical men when a stamped addressed envelope is sent us. 3. Depends on the source of the "heat." May be due to exercise, poorness of blood, nervousness, and many other causes.

F. K. R.—No; arsenic would do no good. Our advice to you is to cultivate mental rather than physical health—the latter, in your case, being apparently satisfactory. Your "blushing" is annoying; but why let it make you miserable? There is no need for you to be so mentally perturbed.

Taff.—Give up suppers, tea and coffee, and if smoking affects the heart's action, give it up also. In your case, wise regulation of meals means everything. You must live "wisely and well." See that your food is light; avoid stimulants and heating foods, and do not overdo exercise. Diet, not drugs, must be regarded as the cure in your case.

Rollando.—1. Locality lies low; you might be better further W. or N.W. in London, we fancy. Walham-green, for example, would suit you, or Camden-town. 2. Difficult to say; depends entirely on the state of the patient. 3. Generous diet, warm clothing, good air, and freedom from worry. 4. No disease exists, and you need feel no alarm. Simply attend to general health (see advice to "J. Edwards," in Health, No. 59), and wait hopefully for the future you say lies before you.

Druggist.—We fancy Bath or Cheltenham would suit you. Try bitartrate of potass, 3 drachms; infusion of buchu, 6 oz.; a table-spoonful thrice daily. A teaspoonful of Fellows' Syrup of the Hypophosphites, thrice daily an hour before food, in a wine-glass of water, should also be taken.

Miss Spencer.—For what purpose is the "tea" required? Let us know, and we will try to answer your query.

John Wates.—Try bathing the hands frequently in water to which boracic acid (a saturated solution) has been added. Very often such symptoms indicate that the general health is a little below par. The tonic recommended to "Cyneus," in present No. of Health, would also do you good.

J. A. H. Dudley.—Try the bitartrate of potass and buchu mixture recommended to "Druggist" above, and let us hear how you are after a trial of this advice. Give up all "wines," and take nothing save a little good claret and water at meals.

Tokar.—Give up using the tonic now, and try the effect merely of a pill consisting of two grains sulphate of quinine, taken an hour before lunch and dinner. Take a walk before retiring to rest (no suppers). Continue to use cold sponging each morning. Bracing sea air, say on the East coast (anywhere from North Berwick or Dunbar to Yarmouth), would suit you quite as well as the sailing, and you would avoid the sea-sickness thereby. Glad to be of any further service.

E. W. Hurley.—No; not if the dumb-bells are used with ordinary care. They should not be over heavy. You might find the information you requirein Maclaren's "Physical Education" (Macmillan). Papers on "Dumb-bells" are in course of publication in our "Recreation," pages. Thanks for your kind letter.

Charles Plimsoul.—Try the effect of the following:—Iodide of potass, two drachms; infusion of calumba, six ounces; a dessert-spoonful thrice daily. Let us hear the result of this treatment.

Mentone.—No harm if the tonic be taken, say, to the extent of half-a-teaspoonful thrice daily, in water, an hour before food.

Diamond.—1. Why not try such fluids as may be made by dissolving a teaspoonful of Carnrick's Beef Peptonoids, in a cupful of boiling water for breakfast? Such a fluid would be a really strong soup, far more nutritious than tea or coffee, or even milk, which you say does not agree with you. This and bread would suffice for breakfast with light boiled egg or fish. For dinner, ordinary fare—well-done meat, potatoes, soups (fish alternately with meat), and light puddings; for supper, porridge and milk, if such agree with you; or bread and cocoa well diluted with milk. 2. The practice of running to catch either cars or trains is, of course, thoroughly bad and injurious.

K. K.—You are mistaken in your ideas regarding the necessity of "prolonged" action. What you describe is very common, and most frequently the result of over-exertion in the particular direction you name. No excitement is needed to accomplish the end in view on the part of the other side—this is a common error. Our distinct opinion is, that you require rest, or change of air—a holiday in short—and a judicious system of tonics. 1. We should advise you to take the tonic recommended to "Cyneus" in present No. of Health, for a time. 2. Use cold sponging each morning. 3. Avoid stimulating food; live plainly, and add vegetable food to your diet, so as to avoid constipation. No other treatment is required. You must avoid over-work especially, and be moderate in all things. Your friend's opinion is entirely erroneous; and you have no symptoms of any condition other than a little nervous relaxation. Let us hear the result of our advice, please.

J. C. A.—You were replied to in Health for May 16. Your initials having been printed there "F. C. A.," in mistake for "J. C. A." The "quack" mentioned in that reply is the person who advertises so largely and in such an offensive style. The first-named medical man you consulted in Glasgow is eminently well-qualified in every way to treat you. We can only repeat here, that you are making a great deal too much of your ailment—we can hardly call it so. Simply attend to your digestion, avoid constipation, use cold sponging, and occupy your mind cheerfully—not neglecting open air exercise, of course.

Merodach.—We have seen Harness's Battery Belt (if that is the appliance you mean), and have satisfied ourselves that it is a genuine appliance. The belt you have tried is also a genuine electrical appliance. As regards treatment, in your case we advise you to be thoroughly cheerful, and to remember that you suffer from no actual disease, but only from nervous depression. Our advice to you is embodied in that given to "J. W. Edwards," in No. 59 Health. Follow these directions, and you need have no fear regarding the result, always provided you maintain a cheerful mind and don't despair.

James C.—Consult any of the physicians whose names appear as lecturers in any of the medical schools of your city. Try the tonic recommended to "Cyneus," in present number of Health. We still say to you, have no fear. You are only a little nervous and weak, and what you name (assuming there is no cause within your own knowledge) will do no harm, provided you attend strictly to ordinary health-details. Continue the cold sponging, and don't overdo exercise.

Marcus.—Try applying Vaseline to the parts night and morning. Whether or not they are removable naturally depends on the depth of skin involved. If not cured, write again.

Veritas.—See to your digestion, For "black-heads," press out the little ducts which have become filled up with secretion (constituting each a "black-head"), and then apply toilet vinegar or equal parts of spirit and water as a lotion to the face. Wash with Pears' or Albion Milk and Sulphur Soap and hot water at night, and dry with a rough towel.

Juno.—See and follow advice given to "Anxious Enquirer" in present number of Health. Look to your digestion, and see that your food is light. A little Pepsine taken with the food would aid you.

Confidentia.—Temperance—abstinence rather—is, of course, a first necessity in your case. As a tonic, try that recommended to "Cold Limbs," above. This will brace you up. Attention to general health details is also necessary.

[*Continued on page* 144.

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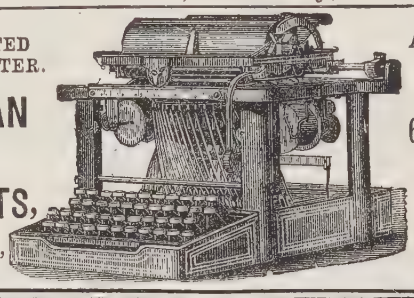

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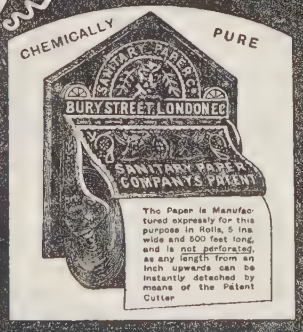
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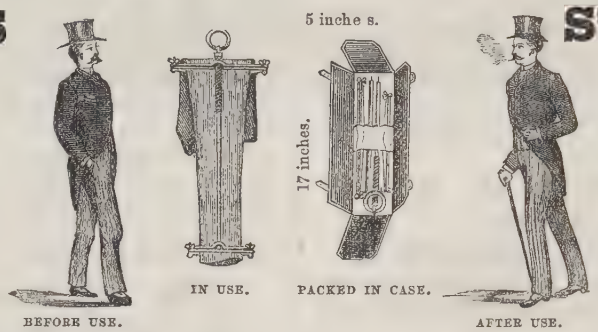

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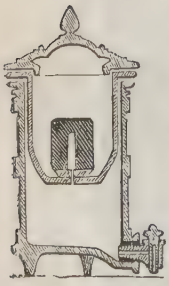

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HEALTH

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, JUNE* 13, 1884.

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Notes by the Way

"Health is the foundation of all our physical happiness."—*Herder.*

More thought-reading! more experiments! more blindfolding! and so on. We should have thought that the world, by this time, would have been weary of the very name of such a practice, judging from the frequency with which the so-called "wonders" of Messrs. Bishop and Cumberland have been shown to the public. The term, "thought-reading," is, of course, a thorough misnomer. No man can read the thoughts of another. The most these conjurors can effect is to make shrewd guesses at the intents and knowledge of those who submit to their experiments. There are really very few persons who possess such immoble faces and muscles that, when they are made the subjects of a "thought-reading" experiment, they can preserve a totally firm face and frame. Hence the "thought-reader," with a quick power of discerning muscular contractions and tremors, unconsciously exhibited by the subject of the experiment, divines, by aid of the said movements, the numbers, letters, or other signs indicating the objects of his quest.

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To call this species of trickery "thought-reading," is, of course, absurd. The public are caught by the high-sounding title, and regard the exhibition as little short of miraculous; whereas it is really far inferior in real cleverness and ingenuity to the feats of such conjurors as the Houdins, Heller, Bosco, and others. It would also seem as though the suspicion of trickery of a somewhat common order was not wanting in connection with these performances. A writer in the *Pall Mall Gazette* points out that it was by no means impossible that Mr. Bishop, in his late experiment in London, should have been able to see through the black gauze or crape bag he wore on his head, in addition to the bandage over his eyes. The eye-bandage, it is alleged, could easily be displaced under cover of the bag through which the operator could then see clearly enough what was taking place around him. There is, after all, little of physiological or true scientific interest in such exhibitions, beyond the fact that they serve to demonstrate the power some persons possess of noting and appreciating the muscular tremors of others. It is also a noteworthy sign that nothing more is now claimed for "thought-reading," so-called, than the credit of being able to construe the muscle-tremors of the subjects experimented upon. This is a modest claim, compared with the high-flown terms in which "thought-reading" was first introduced to public notice.

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Miss Helen Taylor, in a recent letter to the *Times*, forcibly remonstrates against the cruelty of keeping waitresses and others engaged at the Health Exhibition standing all day long without giving any interval for rest. The duties of these girls are said to necessitate them being on their feet for eleven hours at a stretch. Of course, this is a highly injurious practice, and one which should not be represented within the halls of a building specially devoted to the teaching of health-laws. The remedy is not far to seek. Let a sufficient staff of waitresses be employed, so that these girls may take duty in relays, and thus secure the needful rest, without which no human frame can long preserve its well-being. We directed attention to this question long ago in Health. Our readers will find an illustration in Health, Vol. I., page 263, of the "patent seats" for shop-women and others. Through the use of these seats the evils of long hours would be completely obviated.

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The largest city in the world naturally possesses the largest share of the sorrows to which flesh is heir. A recent Parliamentary return gives the deaths from starvation in London at 44 in 1883. Of these deaths 39 occurred in east and central Middlesex. Philanthropists will naturally stand aghast at this terrible record of preventible death. The wonder, however, is not that these numbers have perished from starvation, but that the figures do not indicate a much larger proportion of deaths from this cause. In the "modern Babylon," where the struggle for existence presses with terrible intensity on the masses, it is surprising that the "grim wolf" does not claim a larger share of victims.

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A curious story is going the round of the newspapers, to the effect that a Dr. Balfour, sceptical of the recent conclusions of Dr. Koch regarding the origin of cholera from its germ contained in water, drank off a specimen of water alleged by Dr. Weir, the Health Officer of Bombay, to contain cholera-germs. When the news was despatched, some time after the experiment had been made, Dr. Balfour was reported as being in good health, and as having exhibited no symptoms of cholera. It is manifest there is some discrepancy in the circumstances, which will no doubt receive explanation in due course. As matters stand, it would be worse than rash to discredit the researches of Koch on the report which has reached us. A definite statement is required of all the circumstances attending Dr. Balfour's experiment, before any criticism is possible.

✣ ✣ ✣

A roman crematorium has been discovered at Lincoln. Some workmen engaged in removing buildings with a view to street improvements, came, in the course of their excavations, upon the crematorium and a sarcophagus; the latter containing ten urns. Within the urns, were contained ashes and fragments of bones. Our Roman predecessors were wise in their day and generation, and trusted to incineration as the most appropriate and sanitary fashion of disposing of their dead. It seems curious that we of the nineteenth century, should appear on the point of returning to the customs of a primitive era; but as the wise man holds, "there is nothing new under the sun;" and the march of progress enables us to practise cremation to-day

in a way undreamt of by the ancient Romans whose urns have been brought, by a happy chance, to the light of day.

* * *

An important idea of recent medicine has taken for a text the possibility of interfering with the lungs as a means of curing certain affections of these organs. Dr. Biondi, of Naples, asserts that there are cases of consumption, for example, in which it would be justifiable to operate on the lung, and to remove the diseased parts as the sole chance of saving the life of the patient. That such an operation might be safely undertaken in certain cases is proved by the records of instances in which Nature has imitated in a very interesting fashion the proposed procedure of the surgeon. Dr. Biondi, as the result of experiments on animals, has found that of sixty-six operations performed on sixty-three animals, thirty-six resulted in recovery. In fifty-seven cases an entire lung was removed, and thirty of these recovered. In six instances the apex or top of the lung or a limited part of the organ was removed, and recovery of all such cases followed. It may be added that the kidney has been successfully removed from the human subject on more than one occasion with the result of complete recovery; and there seems no reason to doubt that ultimately the lung will fall under surgical care in those cases in which a limited surface being affected, the removal of such a part may be hoped to act as the means of restoring a patient to health and vigour. Nothing so well illustrates the progress of medical science as the recital of those cases of advance which have for their aim the relief of mankind from diseases now or formerly accounted of hopeless nature.

* * *

Last year we sounded a note of warning against the practice of permitting children to eat the ices vended in the streets, not only on account of the deleterious nature of many of the compounds sold under such circumstances, but because, from the want of cleanliness in the glasses employed, disease is apt to be transmitted to the consumers of such delicacies. We recently had brought under our notice a very serious case of disease occurring in a little boy, the affection being clearly traceable to his indulging in the doubtful luxury of street ices. Our contemporary, the *Lancet*, has recently remarked on the serious effects of the practice of allowing children to consume the common and often poisonous confectionery sold in the public thoroughfares. Cases of typhoid fever have been traced to the consumption of coffee, ice-creams, and other condiments hawked in the streets. It seems hard that the means of livelihood of any industrious poor persons should be subjected to criticism; but the interests of health are paramount, and the sooner the possible dangers of such a traffic are pointed out, the sooner will reform and care be exercised in the selection and manufacture of these articles. Meanwhile, parents will do well to be on their guard against sources of disease in their children.

* * *

At the Health Exhibition on Monday last an interesting lecture on "The Science of Cookery" was delivered by Mr. Mattieu Williams. Such discourses, dealing with topics of practical, everyday interest, cannot fail to supplement, in a satisfactory manner, the educative work of the exhibition.

* * *

A joint conference of "The Society of Medical Officers of Health," "Sanitary Institute of Great Britain," and "Parkes Museum of Hygiene Committee," was held this week in the exhibition. These meetings must be productive of satisfactory concerted action, in the cultivation of all matters relating to the public health.

Original Essays

"Life is not to live, but to be well."—*Martial.*

THE IMPROVEMENT OF THE MEMORY.

By Dr. Andrew Wilson.

Naturally enough, the topic of memory-improvement forms the end and focus of all thoughts, reflections, and considerations regarding the recollective powers. Of all complaints of body and mind, that of a "bad memory" is perhaps the most commonly bewailed. The only surprising part of the practice in question appears to consist in the fact that, despite the avowal that the memory is deficient in exactitude, there is often illustrated an utter carelessness respecting its improvement. This indisposition to better the memory powers arises, I believe, chiefly from the idea that the recollective powers are little, if at all, susceptible of cultivation, education, or improvement. People, as a rule, are content to jog on in their accustomed way, feeling their memory deficiencies acutely, and regretting their inability to "remember" the details of business or life at large; but, at the same time, making no effort whatever to bestir themselves in the matter of improvement. The idea that a bad memory "comes by nature," and is insusceptible of improvement, has become fixed in the minds of the majority of persons. Until this exceedingly false notion is removed and replaced by the true idea—namely that, under ordinary circumstances, the memory may be wonderfully improved and cultivated — mental progress will be retarded, and intellectual growth fail to reach even a moderate degree of possible development.

One of the points most necessary of recognition and remembrance in connection with the memory and its culture, is that which insists on the mutual interdependence of memory, upon the bodily state and physical organization. In this respect, memory does not stand alone. Like every other mental trait, the memory shares under ordinary circumstances, the health of the frame which owns it. There is a material basis of healthy mind, apart from all considerations of metaphysical kind, in healthy brain-structure, in pure blood, fresh air, and well-nourished nervous tissue. This much no one may deny. Hence, one prolific cause of some memory-ailments of very frequent occurrence, is simply bodily ill-health. Ordinary and slight ailments of body, loss of tone, weariness, fatigue, and especially overwork, are each and all powerful causes of memory-weakness.

The class of subjects who most frequently exhibit memory-weakness from these causes, are undoubtedly professional men. The busy lawyer, doctor, clergyman, teacher, or the worried merchant, are especially liable to failures of recollective power from ordinary ailments of body. And amongst such ailments, *overwork* is perhaps, in its turn, the most common. The tired and jaded brain will, in time, refuse to exert itself. The effort to recollect becomes even painful. The pen of the journalist, in such circumstances, pauses in the endeavour to recollect appropriate words, terms, and expressions, which, at other times, and in the healthy state, literally flow from his brain. The doctor forgets the details of the cases he sees; his patients have to remind him, greatly to his disgust, of directions and orders he formerly gave. The clergyman or lecturer fails to hit the continuity of thought necessary for fluent expression. The lawyer cannot easily piece together the details which form his "case," and so on.

The memory-troubles which are most common and most troublesome are really the offspring of over-work, mental lassitude, or bodily ailments of common-place kind; and it should be borne in mind that such memory troubles are not the least important, because they arise from well-known causes. On the contrary, it is because they are often readily recovered from, that they are apt to be neglected, and it is because they are apt by frequent repetition to grow in intensity that they demand special notice here.

Sir Henry Holland has placed on record a highly illustrative example of the effects of over-exertion on the recollective powers. He descended in one day two very deep mines in the Hartz Mountains, remaining underground for some hours in each mine. "While in the second mine," says the author, "and exhausted both from fatigue and inanition, I felt the utter impossibility of talking longer with the German inspector who accompanied me. Every German word and phrase deserted my recollection, and it was not until I had taken food and wine, and been some time at rest, that I regained them again." Now, in this case it is evident there was loss of memory from sheer physical exhaustion, the case being that of a highly-cultured man. What was seen in an extreme degree in Sir Henry Holland occurs frequently, in a less marked degree, in the subjects of overwork and loss of nervous and bodily tone at large. It is not uncommon to find examples of the same kind in the young. In school children, over-anxious as regards their work, and especially in those preparing for examinations and competitions, loss of memory from combined over-exertion and inattention to bodily nourishment is only too well known. The boy or girl who is so eager to learn that meal-times and play are together regarded as unwelcome occurrences in the day's round of duties, is a subject who deserves careful, and even stern, parental treatment. These are the subjects who, crammed to repletion with knowledge, often well enough digested, and by no means gained by rote, find their memories fail them, for the simplest matters, at the examination-table; and these are precisely the cases in which absolute rest, attantion to diet and digestion, with perhaps the addition of a simple tonic, suffice to restore the mental powers to their wonted activity.

I have frequently known cases of students, who, under circumstances similar to those above described, have "burned the midnight oil" successfully enough as regards the acquirement of knowledge, but unsuccessfully as regards their mental health. On appearing at the examination table, and on being questioned by the examiner concerning the simplest and most trivial details, they stumble, hesitate, and finally break down. In such cases the examiner's duty becomes clear, and, personally I have frequently acted upon this rule with unvarying success—namely, to request the student to return home, to eschew books and studies entirely for the day and night, and to return to the examination-hall after twenty-four hours' complete rest of body and mind. The candidate reappears refreshed and eager for his trial, and finds no difficulty in satisfactorily answering question of which the day before he had lost all cognisance. The case of the wearied child at the close of a long day spent in a heated, and often ill-ventilated, school-room is precisely similar. The teacher may threaten as he likes, no result is produced—save, perhaps, that of tears. The child's physical nature is exhausted, overstrained, and weary; and a scamper in the fresh air, with no thought of lessons, is, in such cases, the only medicine of any avail in restoring the jaded powers of mind.

The more clearly the interdependence of body and mind is discerned, the less surprised or astonished will we feel on learning, by experience of our own state or by that of others, the immense harm which physical overstrain effects in the case of the recollective powers. It might be added that failure of the memory-powers in the ordinary individual, is frequently the first sign and symptom of that over-work and loss of tone which demands rest as its sovereign remedy.

The business man or professional man, who begins to notice memory-failure in his own case, usually observes also that he is clear-headed each morning, after the rest of the night, but fails as the day wears on. These indications, neglected month by month, it may be, result in memory-disorganisation. Brain, like body, is long-suffering enough, but there is a limit to the endurance of both. Hence, when the memory fails in the active individual, he should seek rest. The sea-breezes, or the mountain-side should allure him from his desk, or study; and the quiet, which, if wise, he will seek, will be found the only safe and effective means for restoring those powers which are our willing servants,—so long, indeed, as we treat them reasonably and well.

PUBLIC PARKS AND OPEN SPACES.

By George Howell, F.S.S.

FOURTH PAPER.

Without stopping to discuss the question of Crown rights *versus* the Civil List, and the earlier arrangements which were entered into with respect to those parks, and other lands over which the Crown claimed sovereign rights, between the sovereign and the representatives of the people, it will suffice to mention that George III. on his accession to the Throne, surrendered the major portion of the revenues derivable from these lands, in consideration of the sum appropriated by Parliament to his use by the Civil List. A similar arrangement was made on the accession of her Majesty Queen Victoria, the matter being settled by the 1st Victoria, c. 2. For the most part the "Royal Parks" are regulated under the Commissioners of Woods, Forests, and Land Revenues; but some of them have latterly passed over to the Office of Works and Public Buildings, whereby they are brought more immediately under Parliamentary control. And it is to be hoped that the whole of such lands will, ere long, be directly managed by officials responsible to Parliament, and be subject to legislative authority and regulation. The following are the Royal parks referred to in and near London:—

St. James's Park.—This was originally nothing but a marsh. It was inclosed and laid out, and walks made by Henry VIII., in 1530; it was much improved by Charles II., in 1668; and by William III., in 1689, when permission was granted to make a passage into it from Spring Gardens. It was further improved by George IV., in 1817, and was first thrown open to the public in January, 1829, Carlton steps being made and opened into the park in 1831. The total area of the park is 60 acres.

The Green Park, which adjoins it, was also enclosed by Henry VIII., in 1853; but it was kept distinct from the former. It consists of 56 acres. The long and lovely walk between the two parks was made by Charles II., who called it the Mall. The Wellington Statue was erected at

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the north-west corner, in 1846; it was taken down to effect some improvements quite recently, and the Government does not appear to know what to do with it, now that it has been removed from its pedestal and the arch upon which it stood is demolished. The private grounds and gardens of Buckingham Palace are close to the parks mentioned, and are in a sense a continuation of them, though walled in from the public gaze.

Hyde Park is adjacent to the two others above mentioned, being separated at Hyde Park-corner only by a wide roadway in continuation of Piccadilly. This splendid park, of 700 acres, was originally the ancient manor of Hyde, and belonged to Westminster Abbey. It became Crown property at the dissolution of the monasteries, in 1535. It was sold by the Parliament in 1652, but was resumed by the King—Charles II.—at the Restoration, in 1660. The fine piece of water called the Serpentine was formed in 1730–33, and the new palisading was erected after the Hyde Park Riots, which pulled down the railings in 1866.

Kensington Gardens is a continuation of Hyde Park, and is the favourite resort of the more fashionable section of London society. Those gardens were purchased by William III., and were improved by Queen Mary II., Queen Anne, and subsequently by Queen Caroline, consort of George II. The Prince Albert Memorial is erected in those gardens, opposite the Albert Hall. It is in some respects a magnificent memorial, but it is spoilt by the gaudy gold and colours with which it is over-decorated.

Regent's Park was originally part of the lands belonging to the Palace of Queen Elizabeth. From the year 1601 the land was let on lease to various persons, but on the expiry of the leases the land reverted back to the Crown. In 1814 it was much improved, planted, and laid out. A portion of it was granted for the Botanical Gardens and the Zoological Gardens, a wide strip being reserved for some purpose, probably for buildings, but none have been erected thereon. An agitation is now being carried on to throw it open to the public. The total extent of the park, together with the delightful eminence Primrose Hill, is about 450 acres, and it has a fine piece of "ornamental water," the scene of a distressing accident some years since, when the ice gave way, drowning a number of persons who were skating and sliding on its shining but treacherous surface.

Greenwich Park was also at one time part of the grounds of a Royal Palace, "Queen Elizabeth's Lodge" being situate there. It consists of some 200 acres, and is distant from London about six miles. It is easy of access by rail, tram, and boat, and has always been a favourite resort for the working classes. Some deer are still kept in the Park, and on a high hill in the middle of it is erected the Royal Observatory, where Sir George Airy for many years successfully carried on his astronomical observations and experiments.

Richmond Park is about eight miles from London, and is a favourite resort with all classes. It consists of 2,253 acres, and is well timbered throughout its whole extent. Richmond Palace was the residence of several kings and queens formerly; the park and grounds were enclosed by Charles I. It abuts on the river Thames, and commands extensive views over Surrey and a portion of Middlesex.

Hampton-court Palace was built by Cardinal Wolsey, and presented by him to the King, his master, Henry VIII., in 1525. The grounds and gardens, consisting of forty acres, were laid out in 1693-4 by William III., and are always attractive by reason of the care bestowed on them. The famous vine, in the vinery, supplies grapes for the Royal household. In the palace are some fine paintings and tapestries; it is open every day in the week, Sundays included. Adjoining the grounds is Bushy Park, about sixty acres in extent, its fine row of chestnut-trees, in full blossom, being one of the "sights of London" during its blooming season of the year. It is about fifteen miles from London, and easy of access.

Kew Gardens are also part of the grounds of a Royal palace. Formerly the palace was occupied by the Capel family, then by the Molyneux family, and afterwards by Frederick, Prince of Wales, in 1730. George III. and Queen Charlotte lived there, the latter dying there, Nov. 4, 1818. George III. erected a new palace under the superintendence of Mr. Wyatt, but it was pulled down in 1827. The grounds are now used as botanical gardens, and as a Royal kitchen-garden, Sir Joseph Hooker being the director. The gardens are open free to the public every day in the week, including Sundays, in the afternoon, the mornings being set apart for gardening work and botanical studies. It has always been a place of favourite resort with the Londoner and casual visitors to the metropolis. The collection of tropical and other choice plants here cultivated is, perhaps, unsurpassed anywhere in the world.

These various Royal parks and gardens have been used by the people for generations as places of popular resort and recreation, the free access to which is undisputed. Nevertheless, the idea of enclosing them, or some of them, seems to have been entertained at one time. It is said that Queen Caroline, Consort of George II., once inquired of the first William Pitt, afterwards Earl of Chatham, how much it would cost to shut up the parks, and make private grounds of them. His reply was memorable. "Three crowns, your Majesty," said the statesman—meaning, presumably, the Crowns of England, Scotland, and Ireland.* The design does not appear to have been further contemplated, if, indeed, it was ever seriously thought of.

The right of holding meetings in the Royal Parks has been hotly contested on more than one occasion. Public meetings in Hyde Park were prohibited after the Garibaldian riots in October, 1862. Riotous assemblies had previously taken place there on the occasion of Lord Grosvenor's Sunday Closing Bill in 1855, and again in 1859, in consequence of the high price of bread. In 1866 the Government tried to prevent a Reform demonstration being held in the park, organised by the Reform League; the gates were closed and guarded by a large force of police, mounted and on foot, and the aid of the military was called in. The immense concourse of people, however, forced down the palings, the police were overpowered by the rush, and severe riots ensued. The prohibited meeting was held by a section of the Leaguers in close proximity to the Achilles statue, near Apsley House. In 1867 great preparations were made by the Government with the view of preventing another great demonstration proposed to be held under the auspices of the Reform League, in the same park. The Government threatend to call out the military to disperse the meeting, if attempted, and a large armed force was actually stationed in the vicinity for that purpose. The Council of the League, however, persevered in their intention, and the Government gave way in their opposition at the last moment, a peaceful meeting being held without molestation or disturbance, and the right of use for meetings, as well as for other objects, was established. The defeat of

INTERNATIONAL HEALTH EXHIBITION. — EASTERN GALLERY. — CHAPKUIS' REFLECTORS FOR CELLARS.—Factory, 69, Fleet-street.—[ADVT.]

* Others say that it was the Earl of Essex, and that the reply was: "Why, a trifle, Madam—only three crowns."

the Government on this point led to the introduction of the Parks Regulation Bill, which was defeated after an acrimonious debate. A milder measure was subsequently introduced, and ultimately carried in 1872. Restrictive regulations were forthwith issued, but these had to be modified in 1873. Meetings in contravention of the regulations were soon after held, when some of the promoters were prosecuted and fined. Under the new regulations, meetings were, and are, only permitted in Hyde Park and Regent's Park in the metropolis, subject to certain restrictions, and two other "Royal Parks" presently to be mentioned.

(*To be continued.*)

Mr. Francis Galton, in his inquiry into human faculty, concludes that the hitherto unused means of influencing the race for the better are numerous and great. He says: "Man knows how petty he is, but he also perceives that he stands here on this particular earth, at this particular time, as the heir of untold ages, and in the van of circumstance. He ought, therefore, I think, to be less diffident than he is usually instructed to be, and to rise to the conception that he has a considerable function to perform in the order of events, and that his exertions are needed."

International Health Exhibition.—We are reminded that this is not the first Health Exhibition which has been held in London, for one was opened last June by the National Health Society at Humphrey's Hall, Knightsbridge, and though small, was very successful, and no doubt suggested the idea of the larger and more comprehensive one now at South Kensington. The National Health Society is represented at Kensington by a modest stall in the Eastern Quadrant, near the conservatory, where cheap books and leaflets of a popular description are displayed; they relate to ventilation, house sanitation, prevention of the spread of fevers, management of infants, food, cookery, &c., &c. A conference on *School Hygiene* will be held at the Exhibition in August, by the National Health Society. The weekly meetings relating to this Conference are now being held at the Society's rooms, 44, Berners-street, W.

Facts About Brain-Growth.—It may in general be admitted that the average weight of the brain undergoes a progressive increase to a period somewhere between the twentieth and fortieth year. According to all the tables before us which refer to the same, the greatest average weight for the male brain is that for the middle decennial period, or, from thirty to forty years; and this, as M. Broca observes, agrees perfectly with what we know of the continued development of intelligence during the whole of this period. For women the full average size of the brain is perhaps attained within the preceding decade of twenty to thirty years; but the difference between the two sexes in this respect is not great. From forty to fifty years there is a slight diminution in weight, and a greater one between fifty and sixty. After sixty years the rate of decrease is still greater; the process of absorption becomes more and more rapid, and thus in the eighth decade of existence the average weight of the brain is less by more than three ounces (80 to 90 grammes) than it was in the fourth decade. In the aged, on the average, the weight of the brain decreases *pari passu* with the intelligence. There are many exceptions to this general law, and some, particularly of the more cultivated and learned class, preserve to extreme age all the fulness and vigour of their faculties. The brain of such men, as the late Professor Gratiolet observes, remains in a state of perpetual youth, and loses little or none of the weight which belonged to it in the prime of life.

Personal Health

"Be timely wise;
With health all taste of pleasure flies."—*Gay.*

THE INCREASE OF CANCER.

Mr. Percy Dunn, F.R.C.S., writes as follows in the *Pall Mall Gazette*:—"There is reason for the frequent inquiry which meets the ears of medical men in the present day—Is it not true that cancer is increasing? For, however much we may attempt to throw into the shade our convictions upon this matter, the records of the Registrar-General remain to show, in all the obtrusiveness of an unvarnished statement, the annual increasing mortality from this terrible disease. A reference to the forty-third annual report of the Registrar-General discloses a somewhat alarming state of things, in connection with which it must be conceded that reflection affords but little assistance in the attempt to solve the cause. According to the report, 80,049 deaths from cancer occurred during the ten years from 1860-1869 inclusive, and the annual average increase was 248. During the years 1870-1879 the total number of deaths from cancer was 111,301, and the annual average increase was 320. As far, therefore, as numbers are capable of showing, we have here conclusive evidence of the increment in the mortality from cancer. It is observable also that the rate of increase is much higher in the latter than in the first ten years. It is, moreover, the case that the annual rate of increase is higher in the years 1860-1869 than in the preceding decennium—namely, in the years 1850-1859. In short, in the years 1850-1859 the increment was about 2,000 in 1860-1869, 2,400; in 1870-1879, 3,200.

We have then confessedly to face the fact that cancer is increasing in our midst at a rate which bids fair to become more and more serious with the advance of time. In an article entitled "An Inquiry into the Causes of the Increase of Cancer," published in the *British Medical Journal* a year ago, I drew attention to the observations which had been made upon the subject by the late Charles Moore, whose investigations into the pathology of cancer had brought under his notice the incontrovertible evidence of the increase of the disease. In the year 1865 he published a small book called the "Antecedents of Cancer," the contents of which chiefly consist in an attempt to explain in what manner the augmentation of cancer is influenced by the circumstances of life prevailing in this country. For instance, he held that the introduction of corn laws, the discoveries of gold and sanitary improvements, whereby the well-being of the nation was conspicuously established, affected cancer indirectly by bringing into prominence the predisposing causes of its occurrence; and good living, it is thought, which follows as a corollary of commercial prosperity, is intimately associated with the manifestation of cancer. Again, inasmuch as cancer is characteristic of the healthy, it may be expected to abound amidst the conditions of health.

The greater prevalence of the disease among the rich than among the poor can probably be explained in this manner.

Scott's Midlothian Oat-Flour.—There is no preparation which can be assimilated with greater facility than such a flour as this. Those who suffer from indigestion might substitute for their ordinary breakfast materials this flour, prepared according to the recipe given by Messrs. Scott and printed on the tins.—Ed. Health.—[Advt.]

The "Bon-ontour" Stay-Belt and other Orthopædic Apparatus, made by K. R. Schramm, Orthopædic Mechanician, 64, Belmont-treet, Chalk Farm-road, London, N.W.—[Advt.]

According to a French observer, the proportion of cancer in the wealthy classes is about 106 in 1,000, in the poor classes it is 72 in 1,000; or at a rate in the former case of 10 per cent., and in the latter of 7 per cent. Now, curious as it may seem, cancer is met with in the lower animals; and it has been said to prevail more frequently among those which are flesh-eaters than those which are herb-eaters. It has been stated by the late Dr. Crisp, who had good opportunities of judging, that cancer is by no means an uncommon disease among the domesticated animals, while in wild animals and uncivilised man it is rare. In 230 also of the quadrumana which he had examined there were no traces of cancer. Thus the inference to be drawn from these statements appears to be plain. It is almost conclusive that the habits of life, either in man or the lower animals, are concerned in the production, or at least in the predisposition to cancer. The surroundings, it is conceivable, of an autochthonic existence do not include influences which favour the production of the disease; consequently in uncivilised man the disease is rare. It is, however, different when man becomes civilised, for then the predisposing, if not exciting, causes come into play, and man has entered an area of life in which the disease has acquired not only a pronounced but an augmenting fatality. And the same is true of animals.

Now, as far as we know at present, cancer has not a zymotic origin; in other words, it does not arise from any micro-organism or "germ." It is, consequently, neither infectious nor contagious. Cancer, in short, can neither be "caught" nor "given." It commences *de novo* in each individual whom it attacks. There is, moreover, no such thing as anything cancerous being transmitted from parent to child in the cases in which the disease occurs in one and the other. It is possible to inherit a predisposition to cancer—that is, if cancer appears in a family, the members may be said to possess a liability to the disease, but practically this statement does not convey with it much significance, because until the disease becomes manifest, no person can be said to be cancerous, inasmuch as he does not inherit the disease, but simply the liability to it. We are confronted with the problem of how to limit the frequency of the disease, and the difficulty of this is apparent in view of the fact that we know almost nothing of its origin.

Cancer, as I have said, is not contagious; it stands almost alone as a disease which increases with our prosperity, and, while our health laws are raising the standard of public health, the mortality from cancer stands forth as a blot upon the results, detracting in part at least from the measure of the success which has thus far been obtained. Observation has shown that cancer has a certain geographical distribution. It prevails extensively in some parts of the globe, and is scarcely known in others. For instance, it is met with most largely in the central parts of Europe, but in the extreme north of this Continent the inhabitants enjoy an almost complete immunity from cancer. It is stated to be unknown in the Faroe Islands, while in Iceland in one year it proved mortal in only thirty-seven cases out of 50,000 inhabitants, or in a proportion of 0·07 to 1,000. With reference to England in this connection, Englishmen may be regarded as unfortunate; for within the geographical area of these islands cancer asserts largely its malignant and fatal influence. It afflicts mankind chiefly at an age at which, by universal consent, life is best enjoyed.

Many and various have been the attempts devised to combat the inevitable fatality of its accession. A few years ago a drug—Chian turpentine—was somewhat extensively employed, its introducer, Dr. Clay, claiming that under its influence cancerous tumours would gradually diminish in size, and ultimately dwindle away; but, unfortunately for humanity, various scientific trials, prosecuted with uncomplaining forbearance on the part of the sufferers, yielded in the end negative results, and Chian turpentine was again relegated to the obscurity from which it had emerged for a brief space of time. The gleam of light, however, which has shed some radiancy over the gloominess of cancer comes from surgery. It may be said of the surgery of the present day that better results are obtained from the surgical treatment of cancer than was probably the case in any former age. Some operations are now being practised which hitherto were not considered justifiable, owing to the want of success which followed their performance. Others have lately been introduced, the practicability of which has proved the wisdom of their conception. Sufferers from cancer who formerly would not have been relieved are, in the present day, benefiting from the application of the principles of scientific surgery. Years of life—some years at least—and the mitigation of much physical and mental suffering, fall to the lot of surgeons to confer. Even the stomach, which in the male after a certain age commonly becomes the seat of cancer, has been dealt with, and a portion of it removed which was diseased, the result being favourable in so far as suffering was relieved and life prolonged.

It must be, however, remembered that the successful treatment of cancer depends as much upon its early recognition as upon the means adopted for its relief. There should be no hesitation in ascertaining the nature of a tumour or swelling which is suspicious or uncertain. The improvements in the methods of diagnosis enable surgeons to recognise cancer in its earliest stages; and as soon as the presence of the disease becomes unequivocally demonstrated, the probability of a successful result is largely enhanced by its early removal. The reason for this is obvious. Cancer commences in each person presumably as a local disease. But it spreads and infects by means of the blood-vessels and lymphatics, first the nearest lymphatic glands and then the more distant organs of the body. When this has occurred, the disease is no longer a local one, it has become what is called constitutional. It is therefore manifest that the most favourable time at which to obtain the best results from surgical interference is when the disease persists simply as a local growth, and when the blood and tissues of the body have not received the impress of a cancerous taint.

MEDICAL AND SANITARY EXHIBITION, 1881.—AWARD OF MERIT.—DIABETES. VAN ABBOTT'S GLUTEN BREAD, and all other suitable Foods for Diabetic Patients. Dietary Tables and Price Lists post-free on application. VAN ABBOTT, 5, Princes-street, Cavendish-square, W.—DELICATE CHILDREN AND ADULTS SUFFERING FROM NERVOUS DEPRESSION. VAN ABBOTT'S HYPOPHOSPHITE OF LIME BISCUITS, for Delicate Children, especially those suffering from Deficiency of Bone, Weak Joints, or Debility, and Adults suffering from Nervous Depression. Each Biscuit contains five grains of the Hypophosphite of Lime. "Quite free from disagreeable taste, and taken willingly by Children, and certainly provide an excellent means of administering this valuable compound. Our analysis proves the accuracy of the printed descriptions on the labels of the boxes. The Biscuits were suggested by Mr. W. Adams, of the Orthopædic and Great Northern Hospitals." — *Lancet*, Nov. 4 1876.—VAN ABBOTT, 5, Princes-street, Cavendish-square.—[ADVT.]

A VALUABLE INVENTION.—It is gratifying to learn that MR. R. ADAMS, of 17, Blackman-street, London, S.E., whose fanlight-openers and silent door-springs are being extensively used, has received large orders for his PATENT REVERSIBLE WINDOW. The sashes, although they slide up and down in the usual way, can be instantly turned inside out, enabling anyone to clean each side of the glass with ease, while standing in the room.—[ADVT.]

Public Health

"Health is the first Wealth."—*Emerson.*

EARTH-BURIAL AND CREMATION.

By A. G. COBB.

(From the *North American Review.*)

V.

OF the different methods of cremation now in use, the most rapid and complete results are obtained by means of the Siemens furnace. Its principle is that of regenerative heat, and its essential parts are comprised in the generator, or gas-producer, where the fuel is burned; the regenerators, consisting of four fire-brick-celled regenerative chambers for gas and air, and the consuming chamber, in which the body is placed. The fire burning in the generator is only an indirect agent in the work of incineration, and this portion of the furnace may be situated at some distance from the section where the body is consumed. The generator is a species of fire-brick oven, with an inclined plane, on which the coal is heated, and this, burning with a limited access of air, produces a combustible gas, which escapes into the gas regenerator, the air at the same time entering the air regenerator. These regenerative chambers work in pairs; they are of cubical shape, with walls of stone, and the interiors filled with a network of horizontal and vertical bars. By contact with the combustible gases the chambers become intensely heated, and both gas and air attain a temperature equal to white heat before rushing into the consuming chamber, where the body is laid. Entering separately and at different points, the gas and air then meet and mingle, and add to the respective heat of each that due to the mutual chemical action. The result is a terrible temperature, equalling 2,000 deg. Fahr. While one pair of generators convey the gas and air into the consuming chamber, another pair are employed in carrying them away to the chimney, and in the passage thither the current of devouring heat, purposely delayed in the labyrinth of lattice-fashioned bars, utterly consumes all noxious vapours given off at first from the body. The consuming chamber is iron-cased, and lined with metal capable of resisting the highest temperature. Its interior smooth, almost polished, and white with heat, presents a pure and dazzling aspect; and, as the body is the only solid matter introduced, the product is simply the ashes of that body. During the entire process of incineration the remains are hidden from view; although, in special instances, where arrangements for watching the operation have been made, no smoke or unsightly transformations of the body were observed. The heated hydrocarbon in a gaseous form, and the heated air, soon change it to a translucent white, and from this it crumbles into ashes. By means of one of these furnaces, Sir Henry Thompson reduced a body weighing no less than 227 pounds, to five pounds of ashes within the space of fifty-five minutes, and at a cost of less than a dollar for fuel.

"After such brilliant results," says Mr. Eassie—"results at once expeditious, cleanly, and economical—well might Sir Henry Thompson challenge Mr. Holland (Medical Inspector of Burials for England and Wales) 'to produce so fair a result from all the costly and carefully-managed cemeteries in the kingdom,' and safely might he even offer him twenty years in order to elaborate the process."

In despite of what has been mentioned, should cremation to any one still present distressing features, let him remember that neither science, philosophy, nor religion can devise a method by which an eternal parting from the form of one we have loved can be anything but distressing. Let him remember that, although the thought of cremation may arouse unpleasant sensations, yet the entire process is complete within an hour, while, by burying, the revolting features of decomposition continue for years and possibly for centuries. In the words of the great scientist whose experiment we have related, "each mode of burial, whether in soil, in wood, in stone, or metal, is but another contrivance to delay, but never to prevent, the inevitable change. When the body is burned, and so restored at once to its original elements, nature's work is hastened, her design anticipated, that is all." "For more than twenty years," says Dr. Parker, "I have believed that the true way of disposing of the human dead is by rapid burning—I say rapid, for chemistry teaches us that decomposition of the body, when interred, is but a slow process of combustion."

SIMPLE METHOD OF TESTING THE AIR.

THE simplest method of estimating approximately the proportion of carbonic acid present in the air of a room is by shaking up a small quantity of lime-water with a certain amount of the air to be tested. The lime-water is prepared by shaking slacked lime with distilled water, allowing it to settle, and then carefully drawing off the clear liquid by a syphon, so as not to disturb the sediment. It can be obtained from any druggist, but should be freshly made.

When this lime-water is shaken up in a bottle of air containing carbonic acid the acid combines with the lime, forming an insoluble powder of carbonate of lime, and when this is in sufficient quantity it makes the water turbid, or milky, so that it can be recognised by the eye. By having a series of bottles of various sizes, filling them with the air to be tested, placing in each bottle a large tablespoonful of lime-water, and then shaking them vigorously for three or four minutes, so that all the air in the bottle shall be brought in contact with the lime-water, and all the carbonic acid be taken up by the lime, we shall find that in one bottle of the series the turbidity is just perceptible, while in bottles of less size the fluid remains clear, and in those of greater size it is dense.

The following table is given by Dr. Smart as expressing the relation between the size of the bottle in which turbidity occurs and the volume of carbonic acid in the air:—

Size of bottle in fluid ounces.	Carbonic acid in volumes per 10.000 air.	Size of bottle in fluid ounces.	Carbonic acid in volumes per 10.000 air.
20.6	3	5.5	12
15.6	4	5.1	13
12.5	5	4.8	14
10.5	6	4.5	15
9.1	7	3.5	20
8.0	8	2.9	25
7.2	9	2.5	30
6.5	10	2.0	40
6.0	11		

If an 8-oz. bottle shows turbidity, the presence of more

DISEASE GERMS IN WATER AND THE BATTLE OF THE FILTERS. See Nos. 52 and 56 of HEALTH.—Maignen's Patent "Filtre Rapide" is guaranteed to remove all the germs of disease from water, organic matter in solution, and metallic impurities such as lead and iron, and also noxious gases. It really aërates the water and renders it pleasant to drink. It can be most easily cleansed by the users themselves. The old filtering medium is thrown away and replaced by a new charge at a trifling cost. Filters suitable for the cottage and mansion, for the kitchen and dining-room, also to purify the whole supply of the house by attachment to the service pipes, and also for waterworks and large industries. Full particulars and prices are found in the pamphlet, "Water, Preventable Disease, and Filtration."—Sent free on application to V. A. Maignen, 22 and 23, Great Tower-street, London, E.C., or through any chemist or ironmonger.—[ADVT.]

than 8 volumes per 10.000 is indicated; how much more must be determined by a second experiment. Taking a 6½-oz. bottle, the air is known to contain less than 10 volumes if no precipitate is developed. The carbonic acid can therefore be stated as constituting from 8 to 10 volumes per 10.000 of the air. But a third experiment with a bottle intermediate in size will correspondingly reduce the limits of uncertainty regarding the carbonic acid figure.

There is no test-paper which can be made practically useful as a quantitative test for carbonic acid.—*Sanitary Engineer.*

A WISE PRACTICE.—In order to prevent the adulteration of milk, the Brooklyn authorities recently stationed policemen in the different locations of Greenpoint, ordering every driver of a milk-waggon to visit Dr. W. A. De Long, Health Inspector, at the station-house, where samples of milk were taken for testing. About fifty samples were tested, and, with one exception, found up to the required standard.

HAY-FEVER.—The treatment of hay-fever is by no means satisfactory, and in no disease is the old adage, that "prevention is better than cure," more truly applicable than in the case of this complaint. If the poison be continually introduced into the system, the antidote, if one exist, can have but little chance of effecting a cure. The first measure, therefore, must be to remove the patient from a district in which there is much flowering grass. A sea-voyage is probably the most perfectly satisfactory step that can be taken. Patients who are unable to go to the sea should endeavour to reside on the coast, where they will generally be free from their troublesome complaint, except when land-breezes blow. Dwellers in towns should avoid the country, and those who reside in the country should make a temporary stay in the centre of a large town. It often happens, however, that such a change of abode is not practicable; and, under such circumstances, if the complaint be very severe, the patient should, if possible, remain indoors during the whole of the hay season. Many persons, of course, cannot keep in the house during the month or six weeks of the hay-fever period; and those who can are apt to find such detention not only exceedingly irksome, but very injurious to the general health. If, therefore, a patient be obliged to go out of doors, he should plug his nostrils with cotton-wool or wadding, by means of one of Gottstein's screws, and should defend his eyes by wearing spectacles with large frames, accurately adapted to the circumference of the orbits. Plugging the lachrymal ducts with small glass rods has also been recommended, and Thorowgood speaks favourably of a little apparatus containing a few drops of a camphorated or carbolised solution, which can be comfortably worn in the nostrils. Instead of *plugging* the nose, it has been advised to close it by compression with a little metal clip. As rapid motion in the open air almost always aggravates the complaint, it may be advantageous to wear a veil over the face whilst driving. One made of "three ply" of fine silk gauze has been found very useful. It is recommended that it should be made in the form of a bag open at both ends, one end fitting round the hat, whilst the other has attached to it a heavy wire ring about ten inches in diameter, which lies on the shoulders and keeps the veil off the face. Those who do not mind being occasionally mistaken for the "veiled prophet of Khorassan" will, no doubt, adopt this plan. Protected in this way, many people predisposed to hay-fever escape altogether, whilst others contract the affection in a very mild form.—*Dr. Morell Mackenzie.*

Recreation and Health

"Health is the vital principle of bliss,
And Exercise of health."—*Thomson.*

CALISTHENICS, OR LESSONS IN PHYSICAL EDUCATION.

BY H. C. STANDAGE.

TWELFTH PAPER.—DUMB-BELL EXERCISES (*concluded*).

The additional exercise referred to in our last paper is this:—

FOURTH PRACTICE.—First movement: raise the bells from the side to the breast. Second movement: thrust the arms forward, bells horizontal; and when fully extended, sweep them round outwards, to each side, as if taking a swimming stroke, and carry them down to the side again. Third movement: raise them to the breast, and strike out as before.

The above exercises are such as are usually done with dumb-bells of light weight. Where great muscular strength is required, however, the exercises are continued with heavy bells.

The following exercises, however, are such as are usually gone through with heavy dumb-bells. For our purposes light ones need only be used, as what we wish to attain by these exercises is flexibility of the hip and knee-joints, a steadiness of the body when in various positions, lissomeness in the movements of the waist, and to strengthen the abdominal muscles.

FIRST PRACTICE.—Stand at attention, heels together, and toes just touching a × on the floor, arms by the side, palms of the hands touching the thighs, thumbs to the front; this is the position of "attention" for all these exercises. First movement: Take a side pace of ten inches to the left with the left foot, and one to the right, of ten inches also, with the right foot, the knees slightly bent, the body sinking down slightly, so that the hands can rest on the thighs just above the knee-cap. Second movement: At the command "Ready!" bend the knees until they jut over the toes, keeping the heels on the ground, at the same time stoop from the waist, and bring both hands to the chalk-mark on the floor, the hands closed and together, the thumbs together, the knuckles to the ground. Third movement: Straighten the back and lower limbs; at the same time bring the hands close up by the sides and carry them to the full extension of the arms above the shoulders. Repeat this movement half-a-dozen times, and subsequently with the bells.

SECOND PRACTICE.—Stand at attention. First movement: Move a full step to the rear with the left foot, and then ten inches to the right with the right foot, and bring the left foot up to it. Half-turn to the right on the heels, and then, second movement, make a full step to the front with the left foot, the right remaining flat and firm on the ground, the knee braced back, and at the instant that the foot meets the ground, lean the body forward, and let the left hand grasp the thigh just above the knee, the thumb inside, the fingers outside, the lower part of the leg and left arm forming a straight and continuous line from foot to shoulder, the right arm remaining extended in the line of the right leg. Third movement: Seize the bell with the right hand, the lower limbs remaining in position. Fourth movement: At the command "Lift," raise the bell above the shoulder (bending the arm during the ascent) and carry the bell to the right breast, and then raising it upwards

to the full extension of the arm, leaning strongly on the left knee, and pressing the breast to the front during the ascent of the bell; in this position the left leg to the knee and the left arm should form one continuous line from foot to shoulder. Fifth movement: At the command, "Lower the bell," replace it at the × chalked on the floor, and "recover." The above two exercises are to be gone through with the other foot (*i.e.*, right foot) pointing to the ×, and the bell to be seized with the left hand.

Third Practice.—With the feet in position shown in Fig. 4, seize a bell in each hand, the arms passing on either side of the knee, the right on the right, the left on the left side. Second movement: At command, "Up," raise the bells above the shoulder, bending the arms during the ascent to the full extension of the arms, keeping the left knee bent, and pressing the breast to the front during the ascent of the bells. Third movement: At command, "Down," bring the bells straight down by the sides, replace them at the ×, and recover.

Fourth Practice.—This is an additional exercise to the above. While in position of the second movement, "Recover"—*i.e.*, carry the forward foot back to the one that is stretching to the rear and stand upright, at the same time keeping the bells elevated above the shoulders to the full extension of the arms. Second movement: Step to the front, with the left foot, retaining the bells at the elevation above the shoulders, and pressing the breast to the front. Third movement: Replace the bells at the ×, and recover.

All the above practices should be repeated with the other foot leading and the bell seized in the other hand to that directed in the above. The same movements can be gone through with the "bar-bells." Some of the above exercises are taken from Maclaren's "Physical Education." The "bar-bell" is a two-handed dumb-bell, consisting of a long rod (from three to four feet long) with a bell at each end.

The following exercise with the dumb-bells is intended to strengthen the knee-joints, so that the leg shall not be bent at the knee when walking, but can be kept stiff. This must likewise strengthen the muscles of the back. Stand at attention, arms hanging down by the sides, the bells on the floor just in front of the feet. First movement: Raise the arms from the sides until level with the shoulders; then, bending the elbows, touch the shoulders with the finger-tips. Second movement: Shoot the hands upwards above the head, palms together, and fingers closed; and, with them in this position, bring them down in front, bending the back, as if about to take the plunging stroke in diving, but keeping the knees perfectly stiff and unbent. When the fingers touch the bells, seize the latter, one in each hand, straighten the back, and bring the bells up to the breast. Third movement: Thrust the arms out at full length sideways, raise the arms until the bells meet above the head, and then, bending forward as before, quickly replace the bells on the floor again close to the feet, and come to the erect or upright position. Repeat six times. When the pupil can do this exercise without bending the knees she may, instead of actually putting the bells on the floor, carry them back again to her breast, as in the second movement, and then repeat the third movement, and then the first, for six consecutive times.

Many exercises with the Indian clubs afford valuable exercise for the chest and giving grace to the movements of the upper limbs; but since the exercises with these instruments are apt to be a source of danger unless given under personal supervision, they are dangerous, inasmuch that the abdominal muscles—especially so in females—are apt to be strained or otherwise injuriously affected, especially if heavy clubs be used. Such clubs as those used by the pupils of Miss Chrieman,* however, are perfectly harmless; but, since all the value to be attained by the use of such clubs will be obtained from the graduated course of exercises I have given with the bells, there is no need for me to detail club exercises.

A Chance Invention.—Forty years ago, a Frenchman, with the usual practical views of the nationality, conceived the happy idea for easily creating intricate designs upon plush. This happy idea was simply the application of a hot iron to the surface of the goods. The discovery was made in an accidental way, and cost him the goods looks of a velvet dressing-gown, which his over-zealous wife had attempted to iron. His experience, however, suggested what was afterwards, and is still, called embossed plush.

The following letter has been addressed to the Secretaries of the Metropolitan and Provincial Bicycle and Tricycle Clubs:—"International Health Exhibition, South Kensington, May 31, 1884.—Sir, I have to inform you that, in order to meet a generally expressed wish, the Executive Council have made arrangements for the safe custody of Bicycles and Tricycles at the Queen's Gate entrance of the Exhibition, for such time as their riders may be within the Exhibition. A charge of 2d. will be made to defray expenses. As the amount of space at their disposal is limited, the Council trust that, if a large number of your club determine to visit the Exhibition in a body, a clear day's notice may be given, so that adequate preparation may be made.—Yours truly, Edward Cunliffe-Owen, Secretary."

Hydrophobia.—Mr. T. M. Dolan, F.R.C.S., has drawn up the following simple remedies for the immediate treatment of dog-bites:—"The bites of a healthy dog cannot cause hydrophobia. This is a well-established fact. As it is difficult to determine the state of health of a dog at the time he bites, the wound should be treated as if the dog were rabid. Dog-bites should be treated at once, by the person bitten or by a bystander, by sucking the wound, if possible; enlarging the wound with a penknife to encourage bleeding; by hot-water fomentation; by free washing with cold water; by ligature, a piece of string tied between wound and heart. After bleeding has been encouraged and the wound has been washed, apply hot iron—as a heated penknife, small key, &c. — caustics, pure nitric, sulphuric, or hydrochloric acid, nitrate of silver, acetic acid, carbolic acid, ammonia, salt, Condy's fluid, or piece of hot cinder. If near a chemist's, the person bitten should run there, keeping his mouth to the wound, if possible, and spitting out the blood extracted. If near a medical man's house, run there at once. If in a part where the person bitten cannot apply his mouth, some bystander should suck the wound. No harm can follow from thus lending assistance. The dog inflicting the bite should be kept under observation for at least fourteen days. It will soon be seen whether it is healthy or not. If healthy, there is no fear of future development of hydrophobia. If the person bitten experiences shooting pain up the arms or other parts of the body, three or four Turkish baths should be taken. If the person bitten is nervous, he should place himself under the care of his medical attendant. I have treated some hundreds of cases of dog-bites from all parts of the country, and I am glad to say that those bitten have not experienced any after-symptoms."

* These clubs are about a foot to fifteen inches long, of light wood, and swelling gradually to the end, the swell part being only about double the thickness of the diameter of the handle.

Our Bookshelf

"Reading maketh a full man."—*Bacon.*

Germs, Dust, and Disease. Two Chapters in our Life-History. By ANDREW SMART, M.D., F.R.C.P. (Edinburgh: Macniven & Wallace.)

IT may be said that the germ theory has taken possession of the field of medicine to an extent which almost entirely excludes all other ideas regarding the causation of disease. There are few readers who do not know something of the main principles and thoughts included in the germ theory. How the germs of disease are living particles; how they grow within the body; how they reproduce their like within the tissues; how the fever is the result of such germ-growth, and how each germ, as a rule, breeds true to its nature and kind—these things are written large enough in the history of modern scientific thought. As a matter of fact, no hypothesis has met with such universal recognition of late years as has this theory of the germ-origin of infectious disease. The surgeon, to-day, protects the wound surface from the floating dust of the air, and finds that healing is most rapid when the surface in question is safely secured against the invasion of germs. The physician, to-day, finds germs in the diseased portion of the lung which has succumbed to consumption. Cholera is caused by a germ now eliminated from the cholera matter; and, in the case of other infectious diseases, there is a tolerable agreement in the ranks of science that, if a cause for such ailments is to be found at all, it will be discovered in the field of the microscope and by the seeker after the minute forms of living things.

The book before us is an exposition, from the popular side, of some aspects of this theory of disease. The two lectures included in this volume were delivered under the auspices of the Edinburgh Health Society. In one sense, Dr. Smart's work may be said to indicate an epoch in the history of the germ theory. We learn from his preface that the author was the first to discover germs in the animal tissues. Engaged in research into the nature of the famous *rinderpest*, or "cattle-plague," of 1865, Dr. Smart found in that year a germ to which he attributed the disease in question. This germ is figured at 1 in the accompanying illustration taken from Dr. Smart's book. It was a rod-like body, which, multiplying within the blood and tissues of the cow gave origin to the dread disease. Next in order of discovery came the *Spirillum* found in the blood of patients affected with relapsing fever. This was Obermeier's "find" in 1868. The *Spirillum* itself is figured at 2 in the illustration. Koch, whose name has acquired fame in connection with researches into the nature of cholera, succeeded in 1874 in showing the germ associated with "wool-sorter's disease," or anthrax. This is figured at 3 in our illustration. The *Filaria sanguinis*, a blood-parasite, found in that fluid by night, but absent during the day, is seen at 5; while the germs of the vaccine matter used in vaccination are shown at 4. It is the propagation of these germs within the blood which is the cause of the mild fever following vaccination and protecting the patient against the more severe small-pox. The germ of typhoid fever (6) was discovered by Eberth about 1880, and the particular *bacillus*, or germ found associated with consumption, is figured at 7 in the illustration.

Our knowledge of germs thus grows, but Dr. Smart's lectures demonstrate also, that there is no reason why wisdom should "linger," in the matter of the repression of infectious diseases and in the preservation of the national health from these scourges. His account of the characteristics of these diseases is so clear that it will bear quotation here:—

"Accepting, as we do, the theory that each case of infectious disease originates in the reception of a distinctly specific, pre-existing poison, and that it in turn becomes self-propagating, we now go on to speak a little in detail of each of these zymotics. There are some features which are common to the whole group. They all, for example, begin with a period of what is called 'dormancy' or 'latency' or 'incubation,' during which the poison is actively developing. But the duration of this period differs in each case. That of small-pox is twelve days; typhus fever, eight to fourteen days; typhoid fever, fourteen to twenty-one days; scarlet fever, three to six days; measles,

Various Disease Germs (all highly magnified).

about fourteen days. These differences in the length of the incubation period being probably due in each case to the amount and strength of the poison received. At the termination of this period the sickness is said to begin, although its distinctive character may not appear for some days longer. These fevers are all ushered in by a marked, and sometimes sudden, elevation of bodily temperature, which, with variations, continues during the course of the illness. It is because of this increased temperature that they are called fevers. Characteristic eruptions now appear. Scarlatina on the second, measles on the fourth, and small-pox on the third day and so on. Now begins the infecting period, which increases with the activity of the disease."

Later on, our author shows that each disease has its unfailing features in the way of breeding-place, and mode of infection. Of three of the best known of these diseases, for example, Dr. Smart says:—

"Small-pox.—The patient is now charging the air, and everything about him, with a most subtle and deadly virus, derived chiefly from the skin and mucous membranes, but not restricted to them. There is no contagion so strong and sure, or that operates at so great a distance, passing from house to house, from street to street, making sanitary precautions difficult." Typhus fever once contracted, is highly infectious, and essentially a disease of over-crowding and foul air from deficient ventilation, associated with

squalor and want, and a deteriorated constitution from whatever cause. It chiefly infects by exhalations from the skin and lungs. The patient's bedding and clothes become saturated, and the poison clings so persistently to the walls, and to everything in the room, as to make the destruction of the latter in many cases necessary.

As regard "Typhoid Fever," the author points out that this affection "differs from the preceding in its being but slightly, if at all, infectious through the air. Here the seat of the attack is the intestinal canal chiefly, and the poison is mainly eliminated by that channel. It is accordingly the intestinal discharges, and clothes or bedding tainted with them, that have to be mainly looked to, and every precaution taken by disinfection and removal, to prevent their access to water sources, such as wells, or into house drains; where, by decomposing, they infect by their effluvia. These discharges acquire their maximum infective power when decomposing."

On such sound scientific basis, namely, that which seeks to trace disease to its actual origin, Dr. Smart proceeds to show how we may guard ourselves against infection, and prevent the spread of these ailments. When the public learn how great is the mortality which year by year results from these diseases, and how much may be done in the way of preventing their widespread diffusion, we shall witness a marked reform in health-matters, and a saving of life such as could hardly be esteemed possible in the absence of knowledge concerning the nature of these scourges. That Dr. Smart's book will materially assist a knowledge of these great preventive principles is the highest opinion which can be expressed regarding its value.

In his second lecture, Dr. Smart deals with an equally important aspect of the "dust and disease" question. He discusses "the effects of unhealthy occupations," and shows how such trades may be improved as regards their unhealthy surroundings. Speaking of the "dusts" which workmen are liable to inhale, we find the author giving the following details. The effects of "mineral dusts" are conspicuous enough in the lists of mortality.

"Notoriously over-topping all the other dusty occupations in their effects upon life and health, are those of the grindstone-makers, flint-cutters, and glass-polishers. The conditions under which their work is carried on are in the highest degree favourable to the production of pulmonary disease. They work in an atmosphere loaded with sharp spiculæ, which lacerate the lungs, and quickly induce consumptive disease. Every grindstone-maker is cut down with it at, or soon after, the age of twenty-four. Hardly one escapes. The flint-cutter and glass-polisher have each eighty deaths per hundred sick of consumption, and their average life is under thirty years. Again, the stone-cutters —a term equivalent to that of our stonemasons (not builders) terminate their average life at the age of thirty-six years, thirty-six in every hundred sick being consumptive."

But "vegetable dusts" are equally important from the physician's point of view. "The occupations which are productive of vegetable dust include a somewhat promiscuous, and apparently incongruous, variety of workers. Among these we have the cigar-maker, and the tobacco and snuff-worker. Although they enjoy an average life of fifty-five years, they nevertheless head the list with thirty-six cases of consumption in every hundred. This unexpected result is doubtless owing chiefly to the irritant effects of tobacco-dust on the lungs, but in some degree, I am of opinion, to the chemical ingredients superadded during the manufacturing processes. Amongst the different classes of workers in textile fabrics, the weavers engaged in the cotton, flax, and hemp branches, are unquestionably the chief sufferers. The mortality from consumption at one period was so great as to lead the Privy Council to inquire into its causes. Dr. Greenhow, who undertook the investigation, showed that it was during the preparatory processes that most dust was given off, and the greater amount of disease engendered. These processes are known as "hackling," "carding," "sorting," and "dressing."

"It is stated on the best authority that three-fifths of the flax mill-workers of Belfast—the chief centre of that textile manufacture—are consumptive. In other words, sixty in every hundred die of that disease. The average life of the weavers of this restricted class is forty-four years, whilst that of weavers in general is about fifty-seven. Carpenters, joiners, and cabinet-makers are affected by their dusty occupations, each group having fourteen consumptive cases in every hundred. These facts afford conclusive evidence that their work is considerably less hazardous than that of the stonemasons."

Add to such causes of disease as are above indicated, those arising from metallic substances—arsenic, copper, lead, phosphorus, &c.—or their fumes, and we may readily see how seriously handicapped the workers in many trades must necessarily be from their fight with unhealthy surroundings.

The *remedies* for these conditions are various; and Dr. Smart ably indicates the direction in which reform is necessary and advisable. Special masks and respirators, the better ventilation of work-rooms, and above all, cleanliness, are some of the means which have worked wonders in the hands of reformers. It is known, for example, that the dangers of operatives in white-lead factories are largely diminished if ordinary cleanliness is attended to; and, once again, we are thus taught the great lesson that health reform consists, not so much in striking out new ways and channels of improvement, but in using wisely and well the every day means of sensible living which lie ready at hand.

Dr. Smart's two lectures are bound together to form an elegant volume, and a perusal of these interesting chapters in the history of health science, will more than repay the reader for the time and trouble he may expend on the task.

Messrs. Cassell & Co.'s Serials.—Messrs. Cassell & Co. send us the second part of the serial issue of their *Book of Health*, and we again take this opportunity of recommending our readers to invest sixpence monthly, in acquiring a volume which teems with information of valuable kind, contributed by some of the most eminent scientists of the day. The same firm issue Part II. of their *Popular Gardening*, a marvellously complete work, treating of every detail connected with horticulture. *European Butterflies and Moths*, Part I., has also been issued. Anyone who loves the insect world, and especially the "scale-winged beauties" of that sphere, will welcome this exquisite guide to a knowledge of butterfly habits and structure. Dr. Robert Brown's *Countries of the World* has attained such marked success that a new reissue of this trustworthy volume has been called for. In these days, when the falling away of geographical knowledge has been deprecated, this work should be prominently circulated. The *Household Guide* (Part II.) continues to teem with information in every department of domestic science and work.

Scott's Midlothian Oat-Flour.—Messrs. A. & R. Scott, of Kingston, Glasgow, and Finsbury-square, London, have prepared a singularly pure and nutritious "Oat-flour," which bids fair to take high rank among the food products which are specially adapted for infants and invalids, and for the use of dyspeptics in particular, whose digestion is weak, and whose stomachs refuse to assimilate foods of ordinary kind.—Ed. Health.—[Advt.]

Sanitary Appliances, Etc.

MESSRS. MANDLEBERG'S VENTILATED WATERPROOFS.

SOME of the advantages to be derived from the application of scientific knowledge and research to human requirements in connection with the important considerations of health and comfort are in a high degree exemplified by the exhibits of ventilated waterproof garments shown by Messrs. J. Mandleberg & Co., of Manchester, London, Dublin, and Glasgow, to be found in Classes 14, 15, and 16 of the Health Exhibition. The well-known objections to waterproof garments are those of confining the skin-secretions, converting the clothes of the wearer into a kind of vapour-bath, and thus inducing cold, and chill, and all the ailments which follow in their train. None of the obvious advantages of waterproof garments hitherto have sufficed to overcome these objections to their use; but Messrs. Mandleberg's inventions appear to us to warrant notice as inaugurating an important reformation in waterproof dress. The special feature of these exhibits is the application of a patented system of ventilation by which the double advantage is secured of permitting heated air to escape and fresh air to pass in beneath the waterproof garments. In the Exhibition are displayed some thirty or forty samples in different materials, patterns, and colours, of ladies' and gentlemen's ventilated waterproof cloaks, coats, and other garments, applicable to the wants of all classes of the community.

The garments in question are by no means unseemly in appearance, but on the contrary, exhibit a neatness and elegance unusual in productions of this class. The ladies' waterproof garments are elegant and pretty, and cannot fail to be an acquisition to the wardrobe. Such articles of attire are indispensable to ladies when riding, yachting, or travelling; special suits having been designed and material prepared for all climates, from tropical to arctic. It may be stated, as interesting to mothers, that girls' and boys' garments of every kind, all ventilated, are also submitted for critical examination.

Numerous domestic articles of an improved character are also exhibited, amongst which we notice a waterproofed lace nursing apron of highly useful character.

Whilst providing for ladies and children, the exhibitors have not been unmindful of the requirements of gentlemen in their various pursuits. Specially constructed dresses suitable for the hunting-field and sports of every description—bicycling, tricycling, boating, and cricketing suits, &c.—will be found in all qualities, and textures to suit all climates. Particular attention may be called to an improved garment in the shape of a "poncha," which can be used as a protection from weather and as a ground sheet. We have submitted these garments to a thorough test, and can vouch for the perfection of the waterproofing process to which they have been subjected.

The many advantages comprised by the combination of health, comfort, and elegance which these patented garments possess over all other so-called "ventilated" waterproof clothing, is the result of close watchfulness based upon the later discoveries in science as applied to improvements in wearing apparel, coupled with an experience on the part of the inventors in this branch of industry extending over a period of thirty years. The medical faculty fully recognise the superiority of these patented ventilated garments, and highly recommend their adoption by medical practitioners themselves, as conducive to health and comfort, and as constituting a great advance upon any ventilating waterproof yet produced. It may be added that these waterproof goods are produced and sold at an inconsiderable increase in price over ordinary unventilated garments.

MESSRS. WILLIAM WOOLLAMS & Co.'s WALL-PAPERS.

WE have much pleasure in again directing attention to the productions of this firm, which occupy a prominent place in the "Health Exhibition" (Stand No. 860, Eastern Gallery). The variety, richness, and beauty of Messrs. Wm. Woollams' designs require no comment or mention from us. That which, however, is equally, if not more important from a sanitary point of view, is the fact that in the manufacture of these wall-papers no arsenical colours are used, and the products thus appear as "health-aids" of the most typical kind. The colours used are exhibited in bulk by Messrs. Wm. Woollams, and it is interesting to note that these colours can be used for decorative distemper work, in addition to their usage in wall-paper printing. When so much has been heard of late years regarding poisonous wall papers, it is satisfactory to find an English firm which has voluntarily assumed a position consistent with the highest dictates and most rigorous requirements of health science, in the matter of pure, non-arsenical pigments. It is interesting to note, also, that as far back as 1859, when the agitation against arsenical colours was yet in its infancy, Messrs. Wm. Woollams produced non-arsenical papers, and thus proved the possibility of producing artistic work free from all injurious taint.

Our Letter : Box

"Conference [maketh] a ready man."—*Bacon.*

NOTICES TO CORRESPONDENTS.

All Communications for the Editorial Department (including specimens of Sanitary Appliances, &c.), to be addressed to "THE EDITOR OF HEALTH," 74-76, *Great Queen-street, London, W.C. Those intended for the Publishing Office to be sent to* "THE PUBLISHER," *at the same address.*

LETTERS TO THE EDITOR.

THE FOWL NUISANCE.

SIR,—I am glad to see you have attacked the "dog nuisance"—but there is something infinitely worse that wants putting down, I mean the detestable *fowl-nuisance*. The resident in London has many troubles, but none to compare with this. At the present period of the year, in what would be the quiet time for refreshing sleep, and in a neighbourhood where there is a real stillness and an absence of traffic in cabs, &c., a whole double row of houses is rendered uninhabitable by a wretched pen of fowls kept by one individual for his own personal hobby; and from two o'clock in the morning, just the time rest is required, sleep is out of the question. I should much like to know if there is no way of abating this, to my mind, the greatest of London plagues. There are many sufferers from this cause, and you could not do a greater service to health and humanity than by helping to abate the fowl-nuisance. Some things *cannot* be helped, yet against these men are striving their hardest; but here is a wholly unnecessary and foolish hobby which one man is allowed to ride to the disturbance of hundreds, and which might be remedied in the simplest and easiest manner. Please bring the subject before the public in HEALTH. I am now writing at 4 a.m., having been tormented ever since 2 o'clock. I can see no relief but changing my lodgings again.—Faithfully yours, T. A. C.

52, Cumberland-street, Warwick-square, S.W.

CREMATION.

SIR,—Your philosophic spirit would doubtless be vexed by the frivolous manner in which the House of Commons dealt with the cremation question recently. But horrible and hideous as is our present mode of "Christian" burial (think of the "pauper" pits in our large towns), I question whether science will, in the long run, declare in favour of the disposal of the dead by *conflagration*. Is not this method itself barbarous? Certainly, with all possible appliances of science, it is in the highest degree inconvenient.* Has the chemistry of nature no simple mode of returning to earth and air the soul's derelict husk than this? I do not pretend to be able to say what the appliances of electricity might be able to accomplish in this direction, but I would call attention to a very simple and efficacious method of disposing of the dead, which has been in use in this country "from time immemorial," though, unfortunately, associated only with those who have suffered the extreme penalty of the law.

In this connection, the following extracts from an article on Newgate burying-ground, which appeared in a recent number of the *New York Independent*, will be of interest to all who seek a solution of this difficult social problem:—

"It is the oddest strip for a churchyard ever seen, some six feet wide, and forty or fifty long. . . . In 1783, the first murderer was laid to rest here, and since then, up to to-day, the churchyard has always been full. In the year of grace 1821, the records of Newgate show that not less than 270 men and women were hanged outside Newgate, and buried in this ghostly alley. Forty years ago, Charles

* If our correspondent will carefully read the paper on Cremation, contained in the present number, he will see that that process is carried out easily, in a cleanly and unobtrusive fashion, and at a cheap cost. The term "conflagration" is entirely inapplicable to modern cremation.—Ed. H.]

Dickens, then an eager young man, just beginning to be known as "Boz," visited Newgate, and found twenty-five persons lying under sentence of death. For its superficial area this is probably the most densely populated cemetery in the world. But no inconvenience arises therefrom. . . . The chief warden (*sic*) of Newgate, who showed me through the place, mentions with something of pride in the excellence of the arrangement, that when a flag is taken up to make way for a new occupant, all that is found of the former tenant is a handful of lime. . . . Not even a chip of the coffin is left, a particular sort of cheap deal being chosen with special view to the operation of the quick-lime in which the body is enveloped. The chief warden is not sure whether, on the whole, if intramural interments must take place, the system in vogue at Newgate is not, for sanitary purposes, infinitely the best."

This apparently means that he *is* sure. I at least am sure. And its superiority to cremation is obvious from these reasons :—1st. It is inexpensive and within the reach of the poorest. 2nd. It would leave our churchyards and cemeteries, as well as our funeral customs, the same *externally* as they are now. Only these churchyards and cemeteries would cease to be as they are now—pits of perpetual putrescence, dangerous and pestilent.

Much is made of the difficulty that cremation would defeat the ends of justice in cases of foul play; but I should like to know what is to hinder a man even now, who desires not to have his body after death a legacy of nuisance and possible pestilence to his surviving fellow-citizens; who desires, moreover, on grounds of esthetic propriety, to speak of nothing else, *to cheat the worms*—what is to hinder such a wise man from giving directions that his coffin shall be well stuffed with quicklime? Is there any law to forbid such orders being obeyed? Is there any law to forbid such a thing being done even without orders? If not, then here is a mode of burial vastly superior to cremation, *already in use*, and even now within the reach of every one.—Yours, &c.,

G. B. S. W.

QUERIES AND ANSWERS.

We would direct the attention of our correspondents to the fact that, owing to the necessity for sending HEALTH to press early in the week, answers to queries cannot, as a rule, appear in the succeeding number of the journal. Every effort is made to secure punctuality in the replies, but we must ask the occasional indulgence of our readers, owing to the large amount of correspondence, which requires assortment and reply.

We must also request correspondents who write enclosing stamps for copies of HEALTH, to address their inquiries to the Publisher, *and not to the Editor.*

GENERAL.

BAX.—"Amnesia" means loss of memory; "Aphasia" means loss of speech.

C. A.—Thanks. Your request shall have our consideration.

B. AXEL.—There is no such person, as far as we are aware. The name is a pseudonym. We agree with you that such an exhibition of conceit is lamentable in a person occupying the position of the person referred to.

M. C. D.—We cannot undertake to adjudicate in matters affecting yourself and the committee. It is entirely a matter which concerns the two parties involved, and them alone.

G. ANDERSON.—You could not do better than try the "Imperial Club" Tricycle of the Coventry Machinists' Company, 15, Holborn-viaduct. We know of cases in which its performance has been regarded as eminently wonderful. See the *Field*, May 11, 1883, for proof of its powers.

B. G. O.—See article in present number.

IXION.—Glad to hear of your success, and that the HEALTH articles were useful to you.

CASTLE DERG.—A few have been tried, we believe—mostly abroad. We can procure particulars of the result, if you desire such information, in a few weeks.

CATERPILLAR.—Read the chapter on the "Metamorphosis of Insects" in Dr. Andrew Wilson's "Chapters on Evolution" (Chatto & Windus). The information you seek will be found fully detailed therein.

STUDENT.—1. Lubbock's "British Wild Flowers and Insects" (Macmillan), would suit you. 2. Read the "Edinburgh Health Lectures," 1st and 2nd series. 3. Microscope would cost about £7 or £8.

T. DEWHURST.—Many thanks for your note. Sewers should be specially ventilated—never into chimney-shafts, on account of liability to "blow down," and let escape of sewage gases into houses. The pamphlet you send is that of a notorious quack.

SANITARY.

GEORGE CATELL.—Yes; we are aware that Dr. Klein disputes the correctness of M. Pasteur's conclusions in respect of splenic fever, but we have not yet heard Pasteur's reply. You must hear both sides, before deciding which is right. It is quite true that Pasteur's Vaccin charboneux, or protective fluid for inoculating cattle and sheep against charbon or splenic fever is sold in Paris.

ALEX. MAIR.—1. Try the first-named. 2. No. 3. Doubtful.

B. C. L.—The inquiry was adjourned, we believe. The address of the Cremation Society of England is Argyll-street, Regent-street, London, W.

CISTERN.—1. About three feet or so. 2. Complete disconnection is what is required. 3. Impossible.

ALEXIS.—A few particles of permanganate of potass might be added to the water.

DERRY.—Evidence has been given both for and against the practice of feeding cows on the grass of sewage farms.

B. PLAYFAIR.—There is no direct escape in such a case for the gas. Your sketch makes this plain. Look at it again, carefully. This would form a serious defect in the plan.

MAC.—A good drinking water should contain from eight to ten grains of minerals per gallon. If the water is too hard, it is apt to cause diarrhœa, and other digestive troubles. Nothing short of a chemical analysis can satisfy you of its quality.

MEDICAL.

[Several replies were inadvertently omitted from last week's HEALTH. Those replies will be found included in the present series of answers.]

JUNO.—In last week's HEALTH (No. 61) you were referred to the answer to "Anxious Inquirer." That answer, however, was inadvertently omitted, and will be found below.

LEX.—See explanation to "Juno," above.

Z. Y. X.—1. One good mark (*i.e.*, if indicative of a good pustule) is sufficient. 2. We should think the calf-lymph "took," according to your description. There is probably some idiosyncrasy in your case. To make sure, we should advise you to be vaccinated again thoroughly with calf-lymph. If it does not "take," we should regard that result as showing, in all probability, that the previous vaccination was successful. 3. You forget, we have to consider many tastes, and that our space is limited. The papers you speak of are all in hand. Our programme is very large, and we must vary the topics.

COLD LIMBS.—Signs of general want of tone. See to your food, which should be nourishing. Take cod-liver oil thrice daily (a dessert-spoonful after meals); try cold sponging and brisk friction with a hand-towel thereafter, if you have sufficient reaction; and for a time take ten drops *Fer Bravais* thrice daily in water. Glad to assist further, if need be.

SUNNYSIDE.—Your system is evidently a little "run down" through long hours and overwork. We should recommend change of air and rest for a time. The skin trouble you name often leaves a patient, when the health has been restored by rest and change. Apply a little of the following lotion to the parts :—Bicarbonate of soda, one drachm; glycerine, an ounce and a half. If not bettered, write again; but we again impress upon you that rest and change are necessary in your case. A visit to the seaside might effect great good; general weakness is at the root of all your ailments.

MRS. DIXON.—At your advanced age, we should not advise you to meddle with drugs. Trust rather to good food and warmth. Rubbing the painful parts with heated oil or Vaseline should do good, and hot salt-water bathing of the parts would also be advisable. There is no objection to the electrical application.

ST. MUNGO.—We fancy the affection will gradually leave you, always assuming your general health is kept up to par. In cases of sleeplessness or pain, you might try fifteen grains bromide of potass in a wineglass of water at bedtime, occasionally. Try the effect of hot salt baths (Tidman's Sea Salt dissolved in hot water will do) occasionally. The application of electricity in such cases often does good. Of course, your profession is rather against you, but you should guard against cold and chill. Moderate tricycling will do good. Glad to assist further. Write again in a month or so, and let us hear how you are.

ANXIOUS ENQUIRER.—[No need to be afraid either of your own or the hereditary trouble. You have no symptoms of the latter, and you are not necessarily liable to such a disease because your relatives suffered therefrom.] We should advise you to continue the cold sponging in the morning, if you have sufficient reaction (use brisk friction with a Turkish towel), and, for a short time, take a teaspoonful of Fellows' Syrup of the Hypophosphites, thrice daily, in a wineglass of water, an hour before meals. Sleep on a hard mattress, avoid fluids late at night, and take moderate open-air exercise. Food to be light and nourishing. Avoid stimulants.

ALICE WARD.—In the case of the aged patient we do not think you should trouble with drugs. Trust rather to generous diet and to fresh air. A change of air would, no doubt, relieve the cold better than any other means. The state of your house which you describe is certainly such as to call for speedy amendment. Where there is damp to the extent you describe, the wonder is that you should ever have been free from colds. As a means of relief in your own case, you should try the effect of inhaling the vapour arising from a pint of hot water to which ten drops of tincture of iodine have been added. Inhale this twice or thrice a day, for a time, each inhalation to occupy ten minutes or so.

CAPILLARY.—Try Clever's Terebene and Rosemary Hair Wash. It is eminently useful in cases like yours. You are mistaken as to the supposed effect of the pomade. The scurf you complain of is the cause of your trubles, and not a result of applying pomade. We know nothing of the "hair producer" you name. Wash the head twice weekly with tepid water and Pears' Soap, and never use a hard brush or small comb. Glad to assist again, if you are not successful.

MERODACH.—What you send is tincture of iron. We should advise you to try *Fer Bravais*, ten drops in water thrice daily. You were replied to in last week's HEALTH.

A GRATEFUL ONE.—Glad to hear of the improvement in health. Discontinue the *Fer Bravais* after a week or two, seeing that it is doing you good. We do not approve of "hair restorers" so-called. They often contain lead. Try Rowland's Macassar Oil. If not better write again. This oil often darkens the hair, and is decidedly nourishing to the hair roots.

VIXEN.—The patient requires a tonic, such as that recommended to "Merodach" above, fresh air, and good food. Try dressing the parts with carbolated vaseline. If not better, write again. Attend strictly to cleanliness, of course.

G. AMENA.—You must see to your general health as well as to local means. Take the tonic prescribed to "Anxious Inquirer" in present number of HEALTH, for a short time, and continue attention to cleanliness, using the lotion each night. Let us hear how you are in a week or two.

F. B. COUNT.—1. Some slight weakness of your bronchial tubes probably. 2. Not necessarily of lungs; rather of the air tubes. 3. Try cold sponging to the chest each morning, with brisk friction thereafter, and take a desert-spoonful of cod-liver oil twice a day after meals for a little time, when you should get quite well. Avoid suppers, of course.

C. A. R.—The person you name is a qualified medical man, but his advertising practices do not meet with the approval of his professional brethren.

W. DANVERS.—1. Often a sign of vigour, provided the body is in normal health. Only quacks magnify the matter into serious proportions. You should give up the tonic now you are well. 2. Visit Dr. Renner's establishment, Marylebone-lane, or Dr. Warlomont's institution, 3, Hemmings-row, St. Martin's-lane, W.C., where vaccination from the calf is daily practised.

VIOLIN.—We should think you irritate one of the lymphatic glands; and, from what you say of your previous ailment, we should strongly advise you to take means to obviate the irritation produced by the violin. It is probable suppuration might ensue, if the gland were to be irritated continuously.

E. C. P.—Avoid vegetables; rest after food is especially necessary, since what you complain of really arises from indigestion; and, for a time, try the following mixture:—Carbonate of ammonia, one drachm; bicarbonate of potass, a drachm and a half; infusion of chiretta, six ounces. A tablespoonful thrice daily before meals.

A. D. A.—1. We do not think the ailment is on the increase. At least, we have not heard of any evidence to warrant such a belief. 2. Yes; because of the more nutritious diet, richer food, and generally more stimulating conditions of life. 3. Not so early, as far as we know. Much more common at thirteen or fourteen. There are physiological reasons against the earlier age. 4. We cannot say. 5. No fixed rule. 6. Yes, certainly. The question is a recognised one by physicians, who are often called on to treat the ailment. Read Dr. A. Carpenter's "Health at School" (Hughes, London), in which you will find the physician speaking to the teacher. Would you oblige us with your name and address, for a private communication regarding the above?

ALPHA.—No objection to the course you propose. Such is quite usual. If in moderation, no harm can result; and, for a time, at least, the practice is safe. Later on, of course, the practice should cease, that is, when near the close of the period.

FOXGLOVE.—You should look to your digestion. Such slight ailments often arise from indigestion and allied troubles. See that you are not underfeeding yourself. You might benefit from a little good claret and water taken with your food. Use a little plain vaseline to the irritated parts, and wash with Pears' or Pixene soap and tepid water. If not cured in a week or so write again. A little *Fer Bravais*, as recommended to "Mersdach" in present number of HEALTH, would do you good.

W. M. G.—You were replied to in No. 60 HEALTH (page 125). You should do us the favour at least to look in HEALTH for your reply after you have written. Take Lœflund's Malt Extract if cod oil does not agree with you; and try the cod-oil emulsion or cream of Mr. Thompson, chemist, Dublin-street, Edinburgh—a palatable form of this remedy.

A READER.—Very difficult to stop such growth. The following is a depilatory, which must be used with care:—Sulphide of soda, three drachms; lime, ten drachms; starch, ten drachms; mix with water to make a paste. Apply with care to the skin for two minutes, and then scrape off. Nothing will stop the growth of hair so long as the bulbs and roots remain.

HOPE.—Food to be light and nourishing—milks, soups, eggs, puddings, &c., for a time. Little solid meat to be taken. Pepsine to be taken with the food, and vegetables and fruits to avoid constipation. Swimming will do no harm if you are otherwise healthy, but don't overdo the exercise, and never bathe for at least two hours or so after a meal.

PŒNA.—You are simply over-nervous. There is no reason why you should not get quite well. You are only worrying yourself over fancies. The advice given to "Anxious Inquirer" above applies to your case. Follow out this advice (the tonic need not be continued), and attend to ordinary laws of healthy living. You are not ill, and need no drugs. Get rid of your morbid fancies, and you will soon be completely restored.

TWO IN A FIX.—Give up tobacco, or, at least, be very moderate. Take, for a time, the tonic recommended to "Anxious Enquirer," in present number of HEALTH. Use cold sponging each morning, and have no fear. What you complain of is by no means uncommon, and will disappear through attention to above rules.

JOHN CAPE (or CASSE).—Take fifteen drops of *Fer Bravais* in a wine-glass of water thrice a day after meals. This will do you good. Food to be nourishing.

H. C. L.—You mistake entirely the secretion you name. You have nothing serious the matter with you. We should advise you to use an injection of Condy's Fluid and tepid water thrice daily (add one part Condy to twenty or thirty parts water, so as to make a very weak solution), and take a teaspoonful of Fellows' Syrup of the Hypophosphites, thrice daily, in a wine-glass of water, an hour before food, for a time. Let us hear how you are after a fair trial of this advice. Rest and a change of air would complete your cure.

A. F.—See remarks to and follow advice given to "H. C. L." above. Yours is a very common case, and one with which we have all sympathy, mainly because it is your nervousness which is at the root of all your fears. Use cold sponging each morning, and have faith in the tonic above prescribed as well adapted for your case. After a short trial of our advice, let us hear how you are. With rest, fresh air, cheerful society, and the above means, you should get quite well.

ALICE COOPER.—See advice given to "A Reader" above.

F. J. ARNOTT.—Try, for a time, the *tonic* recommended to "H. C. L." above. See to the ventilation of your bedroom, and take more open-air exercise. A course of tricycle-riding, as you are engaged in a sedentary occupation, would do you good. We are of opinion it is your want of open-air exercise and close occupation which are at the root of your troubles. Glad to assist further, if required.

W. TALBOT.—We think you would have benefited more from residence at a more bracing seaside resort—say Eastbourne or Hastings, as we recommended in our last reply. If you do not find your present residence improving your state, by all means try the more bracing places just mentioned. 2. We think if the seaside is found, after trial, to disagree with you, you might try Matlock or Malvern, Buxton would also be likely to suit you. But give the sea a fair trial. You are probably living in a too relaxing air at present. Walking in moderation will do you no harm. Glad to hear of your improvement otherwise.

LOVER OF THE COLD BATH.—From your description, we should think the bath agrees with you, but you have need of brisk friction thereafter, and of exercise through the day. What you complain of as often as not arises from deficient nervous tone. We should advise you to let your food be generous, and, if you can take a dessertspoonful of cod-liver oil after your meals, you will probably find that remedy benefit your circulation.

COSMO.—We think you may attribute your symptoms to your confined occupation, and to your lack of fresh air and exercise. Try to remedy these conditions, and take for a time a little Æsculap Water in the morning as a cure for constipation. The *Fer Bravais* as recommended to "John Cape" in present number of HEALTH, should also be tried by you.

[*Continued on page* 160.

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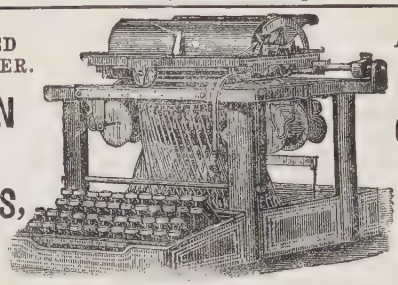

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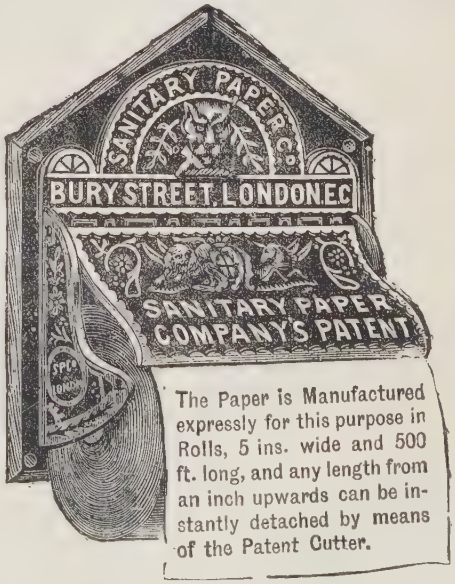

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DURHAM LAD.—Yes, the tonic is that you name.

R. S. S.—Let your food be very light for a time, and see that you rest after your meals. A little Pepsine taken with your food will do you good. For the general relief of your digestive system, take a little Æsculap Water occasionally in the morning. Attention to your diet will affect a cure. Let us hear how you progress.

V. W. M.—You must exert a firm control over yourself. The thought of the evil you are working to yourself should be more than sufficient to cause you to drop your infatuation. Seek cheerful society and active employment for your mind. In such employment, together with plenty of outdoor exercise, you will find your best remedy. Your ailment is certain to be fostered by laziness and want of healthy mental work.

R. T. A.—Try the effect of hot salt water baths and applications to the seat of the pain. Warm oil rubbed into the painful parts may give relief. If these remedies fail, and the pain remains persistent, we should recommend you to undergo a medical examination. At your age, these symptoms are not to be neglected.

SOCIABLE.—You do not give any particulars of your health in your last note. You must state how long you have suffered from the affection of which you complain; your age; what circumstances make you better or worse; your diet, mode of life, &c. When you forward these particulars, your case shall have our consideration; without them, we cannot aid you.

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HEALTH

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, JUNE* 20, 1884.

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Notes by the Way

"Health is the foundation of all our physical happiness."—*Herder.*

Persons who are troubled with that most wretched of neighbours, a howling dog, will rejoice to hear that there is a prospect of relief from their torments through an appeal to the law. Mr. D'Eyncourt, a London police magistrate, was appealed to last week by a person who had suffered annoyance from dogs which barked and howled "at all hours" on the premises of a veterinary surgeon. The magistrate said that "if the nuisance was not absolutely discontinued at once, he would send the defendant for trial for continuing a public nuisance." This decision shows those who are annoyed by barking dogs, that the law includes provision for their relief. No doubt, that enemy to mental peace and health, the "fowl nuisance," may also be included under the same clause of the Public Health Act which applies to the dogs.

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Warnings have been issued to the public against the consumption of mackerel and mild ale at the present season of the year. The temptation to large draughts of ale in sultry weather is, no doubt, very great, increased skin-action being induced by such excess, and liability to chill and chest troubles being thus incurred. The case against the mackerel is, to our mind, less clear. The report from which we quote alleges that the fish is liable to contain "a small worm which would be injurious and likely to create cholera (*sic*) and other diseases." It would be interesting to know the exact meaning of this high-flown statement. Cholera developed from the Asiatic *comma-bacillus* we know, but what is the "cholera" which the "small worm" of the mackerel is liable to produce? and what are the "other diseases" which the flesh of the fish is suspected of causing? There is a haziness of statement about this cholera production which is highly unsatisfactory in the case of warnings meant for public instruction, and published at large in the public prints.

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A swimming-bath is wanted in Whitechapel, in the East-End of London. The Rev. Mr. Barnett, of St. Jude's, Whitechapel, or Mr. F. D. Mocatta, of 9, Connaught-place, London, W., will be glad to receive subscriptions in aid of this most desirable project, which is estimated to cost £1,000. The Vestry will supply the water, and maintain the bath after its erection—a very fair offer, it must be confessed. There is no doubt that such a bath in the densely-populated district of London above-mentioned would prove a true health-boon in every sense of the term.

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Dundee is at present suffering from an epidemic of measles. In this announcement there is, of course, nothing very novel; but when the medical officer of health of that town is found adding that, "the spread of infection was largely due to the wilful neglect of sanitary regulations by many school-teachers," the epidemic in question becomes fraught with serious lessons to Dundee and to every other community. We learn that the alleged neglect of the Dundee teachers consisted "in their having failed to demand medical certificates from convalescent pupils who had been absent through illness."

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There can be no doubt that it is a teacher's duty, where infectious disease is suspected or known to have occurred in a family or district, to insist on the production of a medical certificate declaring absolute freedom from infection in the case of each child before he or she is allowed to return to school and to mingle with schoolfellows. This much no one may deny or controvert. The teacher is the guardian of his pupils' health, no less than their educator and friend; and the bodily safety of children under his care should be as much his anxiety as the satisfactory training of their minds. The medical officer of Dundee, we further learn, advises the prosecution of the teachers who have been thus neglectful of sanitary precautions; but what does he say to the parents who allowed children, still under convalescence, to attend school? What, again, has been the action of the medical attendants in such cases? It appears to us that the teacher is only one of three or four persons, whose united action is necessary for perfectly securing the safety of children at school from infectious disease conveyed by companions, allowed prematurely to return to their places in the class-rooms. Most cases of "ringworm" (to quote a common example) arise from the carelessness of parents, in allowing children so affected to mingle with their healthy companions.

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The lecture and conference programme of the "International Health Exhibition" continues to be varied in an instructive manner. Miss Smithard's lecture on "Dairy Management"; Dr. De Chaumont's discourse on "Practical Dietetics"; and Dr. Thudichum's lecture on the "Æsthetical Uses of Wine," illustrate variety, combined with interest and instruction. Probably the most interesting paper included in the programme of the Medical and Sanitary Conference was that of Dr. Bristowe on "Industrial Diseases." In this latter discourse, very full information was given concerning the ailments induced by certain trades, and suggestions were also thrown out for the amelioration of these diseases.

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Sufferers from "hay-fever" should "make a note of" the advice given by a correspondent, which is to the effect that so long as the rays of the sun are kept from beating on his face below the temples, he is free from his enemy. For eight years he has succeeded in staving off hay-fever; his secret, as he puts it, simply consisting in the advice to use "a broad-brimmed hat, an umbrella, or keeping out of the sun altogether on sunny days." His doctor, he adds,

told him that he should avoid allowing "the sun's rays to fall directly on the lachrymal glands." These latter are the glands which manufacture the "tears." By protecting them from the scorching sun-rays, hay-fever and the unpleasant watering of the eyes, which forms one of its symptoms, are together prevented. Such is the testimony of a sufferer; and we present them to our readers in the hope that the hint may be of service.

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AN article on "Hay Fever" and its treatment, appeared in HEALTH (No. 16, page 247), of last year. We may refer our readers interested in this topic to that paper, for a full account of this affection, and of the remedies best adapted for the relief of sufferers.

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To boil the milk we use, said Dr. Thursfield, at a Health Exhibition Conference, the other day, is, for all practical purposes, to confer freedom from infection by its means. In the warm weather of summer, the boiling of milk is, perhaps, more necessary than in the winter season. Disease germs [(or other germs), rendered inert by the boiling process, may, in this view of matters, be supposed to be acted upon by the juices of the digestive system, and converted into harmless specks of matter, incapable of giving origin to their characteristic ailments.

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DR. WILSON'S papers on "Memory" will be resumed in the next number of HEALTH.

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MOST readers are familiar with the ingenious advertisement of Messrs. Pears', the well-known soap-makers, in which the word "Pears," printed in colour on a special ground, is reproduced to the eye by transferring the gaze to a ground of a different colour. The optical illusion thus illustrated takes place in accordance with well-known principles of optics. Looking through the pages of Dr. Abercrombie's classic work on the "Intellectual Powers," we came upon a passage which seems to foreshadow, in an interesting fashion, the well-known idea of Messrs. Pears. Dr. Abercrombie quotes the passage in question from Erasmus Darwin, and cites it as an example of what in modern physiology would be called "subjective sensation." Such sensations are familiarly seen in the case of a person who fancies he beholds spectres; or, more familiarly still, in the ringing of the ears, and in the sensations of flashes of light, occurring where there has existed no (outside or "objective") cause for such feelings.

✣ ✣ ✣

DARWIN'S words run as follows:—"I covered a paper about four inches square with yellow, and with a pen filled with a blue colour wrote upon the middle of it the word 'BANKS' in capitals; and sitting with my back to the sun, fixed my eyes for a minute exactly on the centre of the letter 'N' in the word. After shutting my eyes, and shading them somewhat with my hand, the word was distinctly seen in the spectrum, in yellow colours on a blue ground; and then on opening my eyes on a yellowish wall at twenty feet distance, the magnified name of 'BANKS' appeared on the wall written in golden characters." The case related by Dr. Darwin therefore resembles in its principles that of Messrs. Pears' advertisement, and again we see exemplified, how difficult is the task of producing an idea which is really of novel kind.

Original Essays

"Life is not to live, but to be well."—*Martial.*

THE TRICYCLE, AND ITS RELATIONS TO HEALTH.

BY VARIOUS WRITERS.

SECOND PAPER.

BY SIGMA SMITH.

UNTIL within the last few years, nay, it may almost be said months, it has been the practice of the Medical Profession to recommend horse-riding as the best possible form of exercise to serve as a panacea for the ills that we are heir to, for those able to afford it; but of late there has appeared upon the scene another form of exercise possessing all the advantages of horse-riding, and at the same time having the further great advantage that it is within the reach of hundreds where the older form can only be enjoyed by tens. Allusion is, of course, made to the practice of riding the tricycle, which forms the subject of this article.

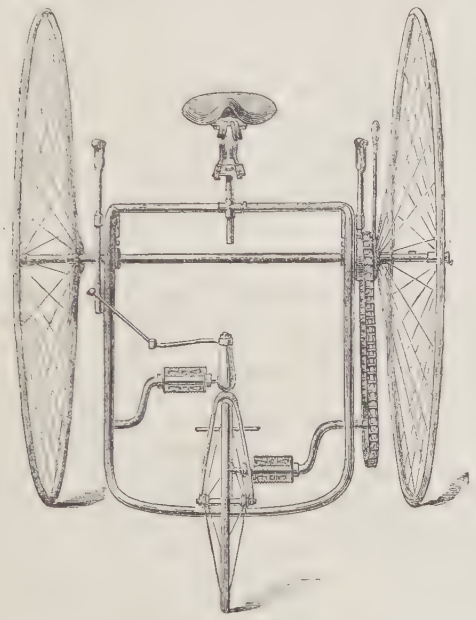
The Velocipede, the term including both bicycle and tricycle, has been euphoniously termed "the poor man's horse," but this is, after all, scarcely the proper way to put it, as it is in truth a horse for the rich as well as the poor, and all alike secure from tricycle riding in particular the most beneficial effects, both bodily and mentally.

The great apostle of hygiene, Dr. Richardson, among others, is an ardent supporter of tricycling, and recommends it warmly to those who consult him, and he is, no doubt, led to this from his practical knowledge of the influence it has upon the general health of its votaries, the pleasure attaching to the practice, and from his having carefully weighed the effect of the exercise upon the several organs.

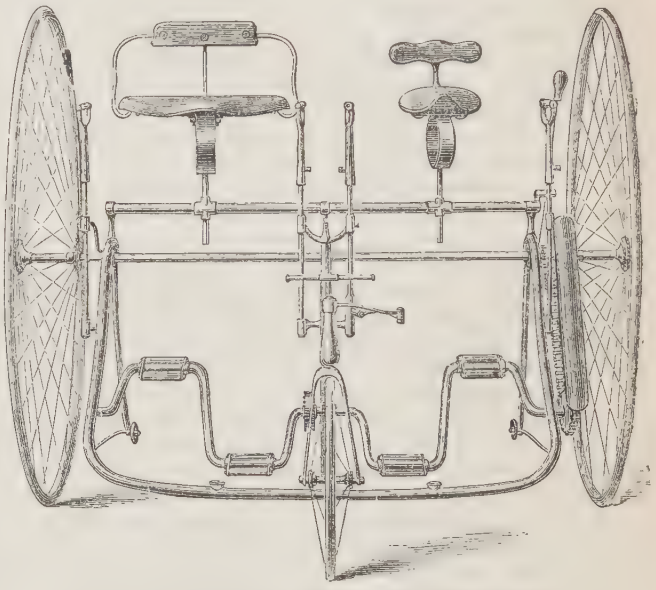
In subsequent articles I shall seek to show the exact manner in which the riding of tricycles operates upon the muscular system and other cognate matter, but for the moment I shall confine myself to a few remarks upon the general question of tricycling as a healthful pastime and means of locomotion. When considering the matter, the greatest care should be taken to preserve a wide difference between the riding of the tricycle and that of its congener the bicycle, as between the two there is as much difference as the proverbial distinction between chalk and cheese. In the tricycle the rider sits upon a stable base, and there is no need for anxiety as to preserving the lateral balance, and avoiding obstacles in the shape of stones, but all that has to be done is to take seat upon a more or less comfortable saddle, and push with the feet against certain pedals, which, by the force thus applied, are caused to pass round and round. The passage round of these pedals, by the intermediate action of linked chains, carries with them the wheels acted upon, and the rider is thus transported along the ground, as if floating in air, as the wheels are cushioned, as it were, with soft india-rubber. The weight of his body is borne by the wheels, and the exercise involved is of a purely muscular character, and is characterised by a total absence of the laborious weight-carrying that is incurred in the act of walking, even in the case of the lighter subjects, seeing that the weight of the body has *not* to be supported by the legs. Although it must be admitted that there is an immense fascination in the easy roll of the machine, which no doubt commends it to the younger spirits.

SWIMMING AND LING'S SWEDISH EXERCISES.—Mrs. FLORENCE WILLIAMS, Certificated Teacher. Schools and private families attended.—The Crown Baths, Kennington Oval, S.E.

I can dismiss the bicycle by the mere statement that it does not possess the element of stability which is so marked a feature in the tricycle, and as it is absolutely needful to direct the closest attention to preserving a balance, a clearly damaging influence upon the nervous system is induced. This may readily be understood by regarding the rapt look of anxiety that is always to be seen depicted upon the faces of passing bicyclists when pursuing their way unconscious of observation, and it is certain that this constant state of nervous tension must tend to neutralise, if not to altogether nullify, any benefit that might otherwise be expected to proceed from the exercise obtained. The riding of the bicycle is a sort of acrobatic feat, and is so precarious as to call for extreme caution, which induces nervous prostration, if prolonged for a length of time, whilst the tricycle can almost be said to be the safest of the various means of locomotion known to man; and after a few experiences, upon a suitable machine, becomes, as it were, second nature; at the same time it brings into play nearly every muscle and sinew in the body, inducing in most cases profuse perspiration—thus proving its utility as an exercise—



"Imperial Club" Tricycle.



The Coventry Machinists' Company's "Sociable."

and a rapid circulation of the blood, with a total absence of mental anxiety; on the contrary, there is a decidedly exhilarating effect.

It is amusing to hear people talk of horse-riding as "shaking the liver," the common impression apparently being that that organ is, by the constant jolting of the horse in its paces, bodily agitated, just as though it were a duster, out of which dust was being literally shaken; and this idea is so prevalent that those holding it are apt to look upon tricycle-riding, with its more equable action, as being wanting in an essential particular in that it does not "flop" up and down. It is scarcely necessary to dwell long upon such a fallacious notion, as it must be tolerably obvious that the influence upon the liver induced by horse-riding is brought about by the muscular efforts tending to promote a rapid circulation of the blood, made first by the legs in raising the body for the rise with each stride of the animal, and then by the resulting action of the shoulders, the back, and, as a consequence, all the various muscles which act upon the internal economy of the human frame. All this is, however, brought about in an almost identical manner by the exertion needed to propel a tricycle, for while the legs have to push on the pedals, thus representing the force applied in rising upon horseback to the horse's stride, the attendant pull at the handles corresponds with the work done by the back and shoulders and the rest of the body, so that the general result is the same; and therefore, as regards bodily exercise, riding the tricycle is almost identical with riding horseback; while those who wish to be shaken need but ride with a stiff spring along one of the so-called McAdam roads near town—the Green-lanes, for instance, the worst road in England—and they will be shaken to their heart's content, be they ever so exacting in this respect.

While making a comparison between the tricycle and the horse, it may not be out of place to compare the distances that can be ridden daily. It would be a good horse indeed that could convey its rider more than 30 or 40 miles in the day, and having done so one day it would be of little use for work on the succeeding day. On the tricycle, on the other hand, it is with the greatest ease that even the average rider can cover 50 miles day after day, and feel all the better for it. As many as 220 miles have been ridden on a tricycle in the full day, and 100 miles is a day's ride that is becoming quite commonplace. Much of this, of course, depends upon the machine that is ridden, and I shall endeavour in subsequent articles to put would-be tricycle riders upon the proper track to procure a suitable machine, a point to which it is desirable to devote strict attention in view of the number of what may almost be termed "rubbishy" machines now in the market, bolstered up by specious and misleading trade testimonials and "puffs," and it is a noticeable fact that the more unsuitable the machine for ease and comfort in riding, the more glowing is the maker's description of its merits and astonishing properties. On this point I shall endeavour to give sound and conscientious advice based upon many years' practical experience of both the bicycle and the tricycle.

The tricycle may be ridden with undoubted benefit to the bodily health by old and young, male and female, the stout and the thin; indeed, those who are most obese will derive the greatest benefit, inasmuch as they avoid the weight carrying inseparable from walking. No man is too old to

begin who has the proper use of his legs; and, as a matter of fact, it is not even essential that the legs shall be used at all, as there are tricycles that can be propelled by the arms alone, and many such are in use by persons who have lost the use of one or both legs. Major Knox Holmes, 78 years of age, tells me that when he first took to tricycling he was almost "chair-ridden," and now he can ride 53 miles in 5 hours, and did so only recently.

By the use of what are called "Sociable" tricycles, a man can ride out with his wife, or his son, or daughter, to their mutual enjoyment and benefit; and, as these "Sociables" can be so arranged as to accommodate two, three, and even four persons, each one contributing his quota to the work of propulsion, it is not difficult to understand what an immense amount of mutual enjoyment and healthy exercise a family may derive from the possession of such a machine. By its aid they can make themselves quite independent of trains during their annual holiday, as they can roam the whole country over in perfect freedom, and can, at need, carry all the luggage they want with them strapped to the machine; and, in their progress from place to place, they can bring themselves into closer communion with the common incidents of rural life; they can wander along the delightful country roads unapproachable, except to a limited extent, by any other means; they can visit out-of-the-way scenes, and peer into shady nooks that can be reached by no other mode of locomotion, with equal freedom and ease; and all the time the invigorating exertion, the fresh air, and the constant change of scene must result most beneficially upon their bodily-health. What can be more enjoyable, for instance, than after a day's ride to stop for the night at some country inn, with sanded floor, and with all the old-world accompaniments that have here survived the old coaching-days? To sleep between sheets of snowy white that have been almost heirlooms in the house; to breakfast upon the home-cured ham and the home-produced eggs, using the old and well-worn family silver spoons, with butter and milk from the neighbouring farm, the table covered with the best of the good wife's damask tablecloths that perhaps her grandmother had a pride in keeping glistening and snowy white, years and years ago—such is the constant experience of tricycle riders who go for tours on their machines.

The general advantages of the tricycle for morning and evening exercise, before and after the day's work, are so obvious as to need few words of recommendation, and there can be little doubt that the practice of tricycling must prove to be a great health-factor to its votaries of both sexes.

ELEMENTARY EDUCATION AND HEALTH.

By Wm. Lant Carpenter, B.A., B.Sc.

SECOND PAPER.

In a former paper (May 2nd, Vol. III., p. 52,) I called attention to the very great importance of the *beneficial influence of variety*, both in subjects taught and in methods of teaching, in connection with the general arrangements of a public elementary school, and I indicated briefly, that in this direction was to be sought one of the remedies for "over-strain in education." I urged that some portion of the teaching should be such as would help to place the pupils in intelligent connection with the common facts and phenomena surrounding them in their daily life, and that for this purpose nature's method of instruction—viz., observation and experiment—should be followed.

Stimulated by the remarkable success which has attended the introduction of such teaching into the Board Schools of Liverpool and of Birmingham, and more recently of Leeds, managers of schools in various towns of England and Scotland have invited me to address them and their teachers on the subject during the last few months, and hence I am in a position to say that the interest in this question is rapidly growing. The essential points in the system are few, but of prime importance, and they should be attentively considered, inasmuch as they were originally suggested by two most eminent scientific men, Professor Huxley and Colonel Donelley, R.E., head of the Department of Science at South Kensington (and have received unqualified approval from many others) and have since been worked out in practical detail with the happiest results, by Boards controlling the education of two of our largest centres of population.

Moreover, some very interesting statements by Mr. Walter Wren, one of the ablest and most successful private tutors, or "coachers" for examinations, have very lately appeared in the *Pall Mall Gazette*, which also bear directly upon this point. Mr. Wren contrasts his methods with those of the ordinary public schools, pointing out that no single lesson should be more than half an hour long (indicating the need of variety), and adds—"I believe in using two senses at once while you are teaching, and in illustrating your subject by tangible objects in every possible way," examples of which he proceeds to give.

In the Board Schools of the above mentioned towns, the so-called science-teaching is entirely *objective*, and the use of books is discarded, the illustrations being drawn from the everyday experience of the pupils, the lesson frequently taking the form of a conversation between the teacher and his class. The older pupils, however, are encouraged to write notes of the lesson, which the teacher or demonstrator afterwards revises. In the next place, these lessons are given, not by the already overworked staff of the school, but by an expert in this mode of teaching, or, in other words, by a scientific demonstrator, who, as a peripatetic teacher, visits in succession the various schools in the town, carrying with him the apparatus necessary for his experiments and illustrations. In the border counties, several small towns are at present making arrangements to secure the services of one such teacher, while in Birmingham the chief demonstrator has two or three assistants, whose whole time is thus occupied. Each school is visited by one of them once a fortnight, a "repetition" lesson being given in the intervening week by one of the school staff. Four day lessons, in as many different schools, may thus be given daily by one demonstrator, and to these is often added a lesson in some night-school.

Much might be said, did space permit, of the wonderfully good effects of this variation in the monotonous routine of the school, afforded by the weekly "science lesson," given in the manner above indicated, for there is not the smallest doubt that there is a large class of minds, especially in elementary schools, whose activity is far more easily promoted, and whose imagination is more readily fired by physical science than by literature. The clerk to the Birmingham School Board gives the following remarkable testimony:—

"Our head teachers unite in saying that the science

A Valuable Invention.—It is gratifying to learn that Mr. R. Adams, of 17, Blackman-street, London, S.E., whose fanlight-openers and silent door-springs are being extensively used, has received large orders for his Patent Reversible Window. The sashes, although they slide up and down in the usual way, can be instantly turned inside out, enabling anyone to clean each side of the glass with ease, while standing in the room.—[Advt.]

lessons do the children so much good that, although they *have to afford time for them which used to be devoted to the ordinary work* for the Government examinations, they, nevertheless, gain in results, and they would feel it to be a loss if they were to be deprived of such lessons. This is even the case in the girls' schools, where they were so heavily handicapped by the time which has to be devoted to needlework, that they can ill afford time for any extra lessons whatever."

Although the science lessons of the demonstrator are not usually given to children until they have passed the Fourth Standard, a very carefully-arranged series of object-lessons, well illustrated, is given to the children in lower standards, by the ordinary school staff, the whole being designed to lead up to the demonstrations given in the higher classes. The subjects there taught must necessarily be chosen from the "Special Subjects" allowed by the Revised Code, and at present the subjects most taught are "mechanics" (*i.e.*, elementary physics) to boys, and "domestic economy" to girls, many thousands of whom are now receiving in this way, in our larger towns, elementary, but exact, instructions in those simple scientific principles, a knowledge of which is essential for the proper ordering of a household, as well in times of health as of sickness. In the next paper I propose to give a more detailed account of the course and method of teaching domestic economy on this system in the Board Schools of Birmingham, Liverpool, and Leeds, since it bears more directly upon the objects of this Journal, than the instruction of boys in elementary physics. To both boys and girls, however, the "overstrain" question applies, and therefore, in concluding this paper, I wish to direct attention, in a very few words, to the "Report on the Question of 'Over-Pressure,' so far as it relates to the scholars in the schools under the management of the Birmingham School Board," and ordered by the Board to be printed on April 3rd, 1884. Among the thirty boys' schools, with 12,977 scholars, in one school alone, in which the poverty* and attendance alike are exceptionally wretched, does the head-master speak of over-pressure with emphasis, and in the twenty-nine remaining schools, with 12,607 children, only nineteen distinct cases of suffering from overwork have come under observation, or 1 in 664, *i.e.*, *one-sixth per cent.* In the case of the 27,000 children in the girls' and infants' schools, a similar state of things prevails, and in the worst school insufficient food is specially mentioned as the cause.

A careful consideration of all the facts brought forward in this report appears to prove beyond a doubt that the general system of education established by the New Code, as it is administered by the Birmingham Board, *cannot be charged with making over-pressure inevitable.* At the same time it must be remembered that the staff in these schools is in excess of the Government minimum, that the class-room system prevails, that adult teachers are largely employed, and that the welfare of the children is more considered than a high percentage of passes. This would appear to support the allegation of the Education Department—about which there may be more to be said in a future article—that the onus of the alleged overstrain in elementary education lies really on Managers of Schools, and not on the New Code.

It may be interesting to note that Sir Lyon Playfair stated at the Health Exhibition, on the 17th, that the mortality of children of school ages has *diminished by thirty-two per cent.* in the ten years succeeding the Education Act of 1870.

* Many children come whose only food between 8 p.m. and 5 p.m. is a piece of bread.

Personal Health

"Be timely wise;
With health all taste of pleasure flies."—*Gay.*

A VALUABLE REMEDY.

By William Craig, M.D., F.R.C.S.Ed.
Lecturer on Materia Medica in Edinburgh School of Medicine, &c.

(From the *Edinburgh Medical Journal.*)

The plants of the Rhamnaceæ or Buckthorn order have long been used in medicine. The juice of the fruit of the *Rhamnus catharticus*—a well-known native species—is officinal in the British Pharmacopœia, and in the form of syrup is used as a pleasant cathartic. More recently the bark of the *Rhamnus Frangula*, the Black Alder—another British species—has been recommended as a purgative. It has long been used in Germany for this purpose, and is officinal in the German and other European Pharmacopœias, and also in the Pharmacopœia of the United States of America. Other species of Rhamnus have also been used as purgatives in various countries; but of all the species of Rhamnus yet employed medicinally, there appears to be none equal to that recently introduced into medical practice in America, I refer to the *Rhamnus Purshiana*, the *Cascara sagrada* (sacred bark) of some writers. This species is a native of California and Oregon, and possibly is also indigenous to other parts of the Pacific coast. It is a small tree about twenty feet in height. The bark of this tree has long been known to the native Indians of a purgative, and as an excellent remedy in various forms as dyspepsia. It is said that the Spanish residents of the Pacific coast learned its virtues from these native Indians, and have long used it extensively as a popular remedy.

A few years ago, a Dr. J. H. Bundy, an "eclectic" practitioner at Calusa, California, having learned its virtues from these Spanish residents, used it extensively in his practice, and found it a medicine of great value.

The enterprising firm of American publishers and chemists, Parke, Davies, & Co., of Detroit, who have done so much for the introduction of new medicines, brought this new drug under the notice of the medical profession. It is now extensively used, not only in America, but also in this country, and I believe will soon be officinal in all our Pharmacopœias.

The bark has been carefully analysed, and is found to contain several resins, besides a neutral crystallisable body, tannic acid, &c. One of these resins is brown, of a bitter taste, and is coloured purple-red by a solution of caustic potash. Another is red, and nearly tasteless, and coloured brown by a solution of caustic potash. And a third resin is yellow, tasteless, and coloured bright red-brown by sulphuric acid. These resins constitute about 10 per cent. of the weight of the bark, and probably are its active constituents.

Disease Germs in Water and the Battle of the Filters. See Nos. 52 and 56 of Health.—Maignen's Patent "Filtre Rapide" is guaranteed to remove all the germs of disease from water, organic matter in solution, and metallic impurities such as lead and iron, and also noxious gases. It really aërates the water and renders it pleasant to drink. It can be most easily cleansed by the users themselves. The old filtering medium is thrown away and replaced by a new charge at a trifling cost. Filters suitable for the cottage and mansion, for the kitchen and dining-room, also to purify the whole supply of the house by attachment to the service pipes, and also for waterworks and large industries. Full particulars and prices are found in the pamphlet, "Water, Preventable Disease, and Filtration."—Sent free on application to V. A. Maignen, 22 and 23, Great Tower-street, London, E.C., or through any chemist or ironmonger.—[Advt.]

When this medicine was first brought before the profession by Parke, Davies, & Co., it was in the form of a fluid extract, which undoubtedly contained the active principle or principles of the bark. The results of using this fluid extract conclusively proved this; for it was found to be a medicine exceedingly efficacious in the treatment of habitual constipation and various forms of dyspepsia, especially connected with affections of the liver. This preparation, however, was very bitter, and in consequence some objected to its use. With the view of remedying this defect, Parkes, Davies, & Co. introduced a modified form of this extract, mixed with various aromatics, under the name of "Cascara Cordial," which is at once pleasant to the taste, and at the same time equally efficacious in the treatment of disease. This "Cascara Cordial" is now extensively used not only in America, but also on this side of the Atlantic, and having prescribed it extensively for two years to my patients, I have come to the conclusion that we possess no medicine equal to this in the treatment of habitual constipation, and for dyspepsia connected with a sluggish condition of the liver. This preparation is now regularly kept by the druggists in this city, and is at once pleasant to the taste and most efficacious as a remedial agent. The dose for an adult is twenty to thirty minims, two or three times a day. It is a safe remedy, even for the youngest children, and, of course, *must be given in such cases in proportionally small doses.*

Its use should be continued for a considerable time, and the dose gradually diminished, until the patient is restored to perfect health.

Its advantages may be summed up as follows:—1. It is pleasant to the taste; 2. It is safe even to young children; and, 3. It is an exceedingly efficacious, if not the most efficacious remedy known to us for habitual constipation.

[It is necessary to add, for the information of our readers, that other preparations of Cascara exist, the doses of these latter being different from the quantities above indicated by Dr. Craig as proper in the case of the "Cordial."—Ed. H.]

BODY AND MIND.

By Dr. Andrew Wilson.

(From the *Gentleman's Magazine* for June.)

Some of the most remarkable results of an unusual mental stimulus upon the body, are witnessed in cases wherein specific diseases have not merely been simulated, but have actually been induced, by the lucid description of them in the hearing of the persons who became thus mysteriously affected. Lecturers on the practice of medicine in our universities and medical schools rarely, if ever, deliver a statutory course to their students without exemplifying the truth of the foregoing observation. The writer well remembers an instance in point, occurring in a class-fellow of his own who attended the practice of physic class with him. During and after the description of skin diseases, this student suffered extremely from skin irritation, induced by his too vivid realisation of the symptoms described by the lecturer. These uncomfortable morbid feelings culminated one day when the lecturer described the symptoms of a certain disease supposed to possess a special sphere of distribution in the northern parts of Great Britain. For days afterwards, the student was tormented by an uncomfortable and persistent itching between the fingers, which no treatment seemed to alleviate; but which passed away when an eruption of a simple type appeared on his hands, the latter induced by no known cause, but apparently as the result of the morbid mental influences to which he was subject. Not a session passes in our medical schools but the lecturer on physic has occasion to quiet the nervous fears of nervous students, who simulate in themselves the symptoms of heart disease, and require the gravest assurances that their fears are ungrounded, and that they have simply been studying with a morbid interest the lecturer's remarks on heart affections. In his work entitled "De l'Imagination," Demaugeon tells us that Nebelius, lecturing one day upon intermittent fever, and lucidly describing ague, noticed one of his pupils to become pale, to shiver, and to exhibit at last all the symptoms of ague. This lad was laid up for a considerable period with a true attack of the fever in question, and recovered under the usual treatment for the disease. If, however, it is found that the influence of the mind, and the vain imaginings of a morbid fancy, may induce disease, it is no less certain that a like action of the mind may occasionally cure an otherwise stubborn malady. No better illustrations of such cases can be cited than those in which a severe fright relieves a condition which may have resisted every effort of treatment. An attack of toothache not unfrequently disappears when we seat ourselves in the dentist's chair. A severe attack of the gout has been cured by the alarm raised consequent upon the house of the patient being set on fire; whilst more than one case of severe pain has been cured by the patient ignorantly swallowing the paper on which the surgeon's prescription was written instead of the prescription itself.

There can be little doubt that certain phases of the imagination possess a singular, and, at the same time, valuable effect in inducing the removal of diseased conditions. It is not certainly a satisfactory use, when viewed from the moral side, of such knowledge, when we find that a vast number of the cures said to have been effected by the nostrums of quacks, are wrought in virtue of this influence of mind over body. The "faith-healing" Bethshans, and allied establishments for the cure of all diseases, grave or simple, by faith in the power of prayer, present in the light of this remark a study of physiological interest. Says Dr. Tuke, in the preface to his interesting and classical work on the "Influence of the Mind upon the Body," the medical reader should "copy nature in those interesting instances, occasionally occurring, of sudden recovery from the spontaneous action of some powerful moral cause, by employing the same force designedly, instead of leaving it to mere chance. The force is there," continues this author, "acting irregularly and capriciously. The question is whether it cannot be applied and guided with skill and wisdom by the physician. Again and again we exclaim, when some new nostrum, powerless in itself, effects a cure, 'It's only the imagination!' We attribute to this remarkable mental influence a power which ordinary medicines have failed to exert, and yet are content with a shrug of the shoulders to dismiss the circumstance from our minds without further thought. I want medical men who are in active practice to utilise this force—to yoke it to the car of the Son of Apollo, and, rescuing it from the eccentric orbits of quackery, force it to tread, with measured step, the orderly paths of legitimate medicine. 'Remember,' said Dr. Rush, in addressing medical students, 'how many of our most useful remedies have been discovered by quacks. . . . Medicine has its Pharisees as well as religion; but the spirit of this sect is as unfriendly to the advancement of medicine as it is to Christian charity.'"

Scott's Midlothian Oat-Flour.—Messrs. A. & R. Scott, of Kingston, Glasgow, and Finsbury-square, London, have prepared a singularly pure and nutritious "Oat-flour," which bids fair to take high rank among the food products which are specially adapted for infants and invalids, and for the use of dyspeptics in particular, whose digestion is weak, and whose stomachs refuse to assimilate foods of ordinary kind.—Ed. Health.—[Advt.]

The Family Circle

"The child is father of the man."—*Wordsworth.*
"In bringing up a child, think of its old age."—*Joubert.*

SOME SEASONABLE USES OF DISINFECTANTS.

BY A MEDICAL OFFICER OF HEALTH.

WITH the approach of the summer weather, it may not be inappropriate to point out the uses which disinfectants may be made to serve in the homes of the people during the warm season of the year. There is no doubt that the advent of summer is apt to induce in our drains certain conditions which may prove injurious to health. In the hot season of the year, for example, there is always greater risk of drain-contamination than in the winter season. Decomposing animal matter gains in intensity of odour and power from the warmth of the year. Refuse-heaps smell more strongly in summer, and waste matters—vegetable and animal both—undergo putrefactive changes with trebled speed under the influences of the summer sun. In the case of our drains, also, there is greater risk of deficiencies acting with increased effect in the warm weather. Owing to the rapidity of chemical change, the emanations of cesspools and drains become quickly and doubly offensive in summer. Of closets also, the same remark holds good. It is not necessary that the closets of a house should be absolutely faulty, for the summer weather to render them liable to become a nuisance of more or less pronounced kind in a house. Even the most perfect closets and drains are somewhat liable to exhibit traces of their presence when the warm weather comes upon us; and it is with the view of showing what may be done by a legitimate and proper use of disinfectants that we have selected the above title for this short paper.

One fact, however, must be ever clearly borne in mind, namely, that under no circumstances whatever must disinfectants of any kind be employed as a cloak and concealment to really deficient drains, sinks, or closets. Where a house suffers from persistent nuisances in the way of bad odours, and where all the year round there evidently exists faulty drainage, the employment of disinfectants is worse than useless. We say "worse," and we mean what we say. In such a case where, for example, a bad drain, an overflowing cesspool, an untrapped pipe, a leaky closet, or an unprotected sink, is allowing sewer-gas and emanations to escape into the house, there is absolute danger incurred by the use of disinfectants. These substances merely cloak and conceal an evil which is certain, sooner or later, to make its presence felt in the serious illness of the household. Tons of disinfectants can never avail, in face of bad drainage, to cure the insanitary evil. As well might we attempt to mop back the waves with Mrs. Partington's broom, as to cure a foul-smelling closet or drain which owes its odours to faulty construction, or to inevitable wear and tear. The case we thus put is so clear, that apology might be needed for thus enforcing it in terms so plain on the attention of our readers; but by sad experience almost of daily kind, we have been impressed with the common folly of the attempt by the use of disinfectants to cure defective drains.

This, then, is *not* the true use of disinfectants, either during summer or winter. The service these valuable aids to health discharge, is of widely different kind. There are many cases in which, from varying causes, drain-odours will escape into a house, and, especially in the summer, constitute themselves a nuisance. We have known cases in which faulty ventilation—not easily ameliorated—and the very situation of a closet, have together caused, in summer, a domestic nuisance, which, in winter, was unknown. Refuse-heaps, or the ordinary domestic refuse-bin or ash-bucket, may also become annoying through atmospheric conditions, and through no absolute insanitary faults or infringements of sanitary law. It is in the amelioration of these simple cases of nuisance, in the repression of annoyances which are only too common in households, and in the substitution of sanitary for insanitary surroundings, that disinfectants find their true justification in summer.

Of their use in the sick-room, and in the prevention of the spread of infectious disease, we need not speak at present. The latter topic has already been treated in the pages of HEALTH, and belongs to a department of sanitary science in which efficient disinfection appears as the veritable saviour of life and preventer of misery, pain, and even death itself.

The list of *disinfectants* from which the public may choose the means of preventing domestic nuisance in summer time is large and varied. We need not enter here into the mode of action of these substances, some of which (*e.g.*, Condy's Fluid) act by oxidising the noxious material, while others act by destroying offensive matter (*e.g.*, carbolic acid) in another fashion, or by supplying an efficient chemical means of purifying the air. In this latter category, Sanitas, Terebene, and allied compounds may be ranked. In cases where odours from closets are met with, tins of Sanitas powder or of Calvert's Carbolic Powder should be kept, and a quantity of the powder should always be dusted into the pan so as to mingle with the water therein after the closet has been used.

Messrs. Cleaver's Cupralum and Ferralum powders are also excellent forms of disinfectants—the latter being specially prepared for household purposes. Messrs. Sale's "Chlorozone" is also an efficient deodoriser. Where fluids are preferred, "Pixene" may be used for the same purpose with advantage. Calvert's Crude Carbolic Acid diluted with water (and kept in bottles prominently labelled "Poison"), or Sanitas Fluid, will be found efficient means of allaying nuisances of this kind. Condy's Fluid is also to be ranked, of course, with those agents which may be applied in this way; while Jeye's Disinfecting Compounds belonging, like carbolic acid, to the coal-tar series, are also used by many persons for the above purpose.

The water in the pan of the closet, thus treated, becomes a source whence the disinfecting principles (in the case of volatile substances) may be spread through the air, the atmosphere being thus kept free from the contamination which the summer too often brings with it. In the nursery, as well as in bedrooms, it is often advantageous to employ a little of some disinfecting solution in the vessels used.

MEDICAL AND SANITARY EXHIBITION, 1881.—AWARD OF MERIT.—DIABETES. VAN ABBOTT'S GLUTEN BREAD, and all other suitable Foods for Diabetic Patients. Dietary Tables and Price Lists post-free on application. VAN ABBOTT, 5, Princes-street, Cavendish-square, W.—DELICATE CHILDREN AND ADULTS SUFFERING FROM NERVOUS DEPRESSION. VAN ABBOTT'S HYPOPHOSPHITE OF LIME BISCUITS, for Delicate Children, especially those suffering from Deficiency of Bone, Weak Joints, or Debility, and Adults suffering from Nervous Depression. Each Biscuit contains five grains of the Hypophosphite of Lime. "Quite free from disagreeable taste, and taken willingly by Children, and certainly provide an excellent means of administering this valuable compound. Our analysis proves the accuracy of the printed descriptions on the labels of the boxes. The Biscuits were suggested by Mr. W. Adams, of the Orthopædic and Great Northern Hospitals." — *Lancet*, NOV. 4 1876.—VAN ABBOTT, 5, Princes-street, Cavendish-square.—[ADVT.]

PURE WATER is such a vital necessity that, without it, illness is certain. None are more prone to the ill effects when impure than the young. To ensure a pure supply send a post-card to the LONDON AND GENERAL WATER PURIFYING COMPANY, LIMITED, 157, Strand, London, W C., who will return particulars post free.—[ADVT.]

Contamination of the air of bedrooms, the ventilation of which may not be by any means perfect, is, in this latter case, less likely to be rendered so offensive in warm weather.

For dust-bins, ash-pails, the buckets of earth-closets, and similar receptacles, which in warm weather are liable, as every one knows, to constitute a nuisance, "Sanitas" or "Carbolic" powder should be used. Such disinfectants often prevent these receptacles from smelling badly, and fluid disinfectants may also be sprinkled freely over their contents. In the *kitchen*, disinfectants have a special use in summer. Every servant might well be instructed in the hot weather to allow some disinfecting solution to remain overnight amongst clean water which has been purposely retained in sinks by the insertion of the plug. The odour from vegetable matter which is so persistent, and which becomes highly nauseous in warm weather, would in this way be avoided, and the air of the kitchen kept sweet and pure.

In *public lavatories* the use of disinfectants is especially indicated. Many of these useful public institutions, situated at railway stations and elsewhere, become in summer nuisances of a most pronounced description. Much of this evil, no doubt, arises from imperfect flushing; but in a large proportion of instances it is one which the judicious use of disinfectants would effectually end. A free supply of such substances should be issued by railway companies and all other bodies interested in the judicious conservation of the health and amenity of their surroundings and premises. Disinfection, in the cases to which we have alluded, is not a cloak for insanitary defects, but a means for lessening and obviating evils which the season of the year may occasionally entail upon the most perfect sanitary mechanism.

HOT LEMONADE FOR DIARRHŒA.—Some people prefer hot lemonade to the usual form, but it is only recently that we have seen it recommended in diarrhœa. Dr. Vigouroux recommends a glass of *hot* lemonade every hour, or half hour, as an easy, agreeable, and efficient treatment for diarrhœa.

THE flesh of animals which have fed on certain *poisonous herbs* may be poisonous to man, though the animal itself has not suffered. Hares, and rabbits, and grouse may thus prove unwholesome or dangerous. Certain medicines given to animals before slaughtering have been known to occasion serious illness in those who have partaken of their flesh.

THE progress of the healing art in new and unusual directions is a topic in which humanity at large must always feel deeply interested. To meddle with the brain in the course of a surgical operation was long regarded as a practice of unwarrantable kind, but the latest ideas of medical science seem to suggest that in the near future certain kinds of brain maladies may possibly be susceptible of relief from a surgical point of view. The "peritoneum," or lining membrane of the abdomen, was long regarded as a structure to meddle with which was a piece of unjustifiable practice; but to-day the relief and cure of certain very grave diseases is accomplished through operations in which the membrane in question is freely treated by surgeons.

LOSS PREVENTED! Time and trouble saved, and linen and clothing protected, by using the "London Linen Marker," Name, Monogram, or Initials, 2s. 6d., post free. Name or address in Self-Inking Nickel Press, 3s. 6d. to 4s. 6d., complete. Stamps for business or private use. Send for patterns. The London Rubber Printing Co., 33, Cheapside, London, E.C.

SANITARY INSPECTIONS.—Fee for Survey and Report, in London, 2 Guineas. Estimate given and Improvement Works carried out when required.—THE SANITARY ENGINEERING CO., 115, Victoria-street, Westminster, S.W.—[ADVT.]

Public Health

"Health is the first Wealth."—*Emerson.*

EARTH-BURIAL AND CREMATION.

BY A. G. COBB.

(From the *North American Review.*)

CONCLUDING PAPER.

WHEN regarded from an artistic standpoint, we see our attractive cemeteries, notwithstanding their picturesque effect, presenting strange inconsistencies; while our climate prevents a display of the finest and most delicate art, and, in fact, renders them for almost six months of the year, unsuitable for being visited. The magnificent and ponderous mausoleum, within which the Roman or the Greek would have deposited, secure from molestation, the cinerary urns of his ancestors, is planted by us directly above some lamented progenitor, as if to deprive him of the privilege of the resurrection. On every hand, marble urns, destitute of ashes, crown lofty columns; and inverted torches, typical of cremation, meet the eye. These are the borrowed tokens of a classic age, that in our modern cemeteries lose their ancient meaning, and serve no obvious purpose. A more serious charge that can be brought against cemeteries is the enormous sums of money annually sunk in them, sums entirely disproportionate to the services they yield. In an address before the Chicago Medical Society, in advocacy of cremation, Dr. Charles W. Purdy made some striking comparisons to show what a burden is laid upon society by the burial of the dead. According to his carefully prepared estimate, "one and one-fourth times more money is expended annually in funerals in the United States than the Government expends for public school purposes. Funerals cost this country in 1880 enough money to pay the liabilities of all the commercial failures in the United States during the same year, and give each bankrupt a capital of eight thousand six hundred and thirty dollars with which to resume business. Funerals cost annually more money than the value of the combined gold and silver yield of the United States in the year 1880." These figures, fabulous as they appear, do not include the enormous sums invested in burial-grounds and expended in tombs and monuments, nor the loss from depreciation of property in the vicinity of cemeteries.

As a return for this unparalleled and ridiculous extravagance, we have the funeral, the most doleful and melancholy thing on earth, and the ordinary graveyard, transitory and repulsive in its nature and deadly in effect. When in addition to these facts we remember that, notwithstanding the vast sums expended, each semblance of poor humanity has been screwed up in a box for a decay as odious as it is needless, we find it easy to agree with the author of "God's Acre Beautiful," who declared the burial system in vogue to be "the most impudent of the ghouls that haunt the path of progress."

The money lavished by the citizens of New York during the past twenty years on funerals and cemeteries would

SCOTT'S MIDLOTHIAN OAT-FLOUR.—There is no preparation which can be assimilated with greater facility than such a flour as this. Those who suffer from indigestion might substitute for their ordinary breakfast materials this flour, prepared according to the recipe given by Messrs. Scott and printed on the tins.—ED. HEALTH.—[ADVT.]

THE "BONCONTOUR" STAY-BELT and other Orthopædic Apparatus, made by K. R. SCHRAMM, Orthopædic Mechanician, 64, Belmont-street, Chalk Farm-road, London, N.W.—[ADVT.]

have supplied a temple for the ashes of the dead in every way worthy of the metropolis. Added to and embellished by coming generations, its halls of statuary would foster art and rob death of half his terror. There, cinerary urns of every design and every degree of elegance could be placed safe from all desecration. Money expended upon them would be better employed than by being devoted to coffins, which, within a few hours, are buried for ever from sight; while, from a sentimental point of view, it would appear less incongruous to dress with roses a beautiful bronze or silver vase containing the ashes of a friend, than to tie a wreath of immortelles to the door-knob of a gloomy vault. Nearly fourteen years have elapsed since Professors Coletti and Castiglioni, "in the name of public health and of civilization," introduced in the Medical International Congress at Florence the question of cremation. A resolution at this congress was passed, urging that every possible means be employed to promote its substitution for burial; and, three years later, the Royal Institute of Science and Letters of Lombardy offered a prize for the best practical method. Since this revival of interest in the subject, cremation societies have been organized in nearly all of the large cities of Europe—in Italy alone eighteen having been established. The crematory at Milan, after being in existence a little over a year, had burned more than 150 bodies; and that at Gotha, built by an association of some of the most learned and thoughtful men in Germany, 52 bodies. Of the 47 men whose bodies were cremated at Gotha 19 belonged to learned professions, four to the army, and four to the nobility. There were 10 physicians. At the last meeting of the Copenhagen Cremation Society it was announced that it contained 1,400 members, among whom were 83 physicians. The French Society at Paris numbers over 400 members.

As an illustration of the views of distinguished Europeans on this subject, it can be mentioned that one of the most prominent of Danish thinkers—Bishop Mourad—who, during the war with Prussia, led the affairs of the nation as Prime Minister, has publicly declared himself in favour of a law that would compel the substitution of cremation for burial. Lord Beaconsfield, in considering earth-burial, wrote: "What is called God's acre is really not adapted to the country which we inhabit, the times in which we live, and the spirit of the age." Gambetta was a member of the French Cremation Society, and General Garibaldi in his will explicitly directed that his body should be burned, and that the urn containing his ashes should be placed under the orange tree shading the tombs of his two little girls.

In our own country, although public interest in the subject of incineration has never become as extended as in Europe, the ranks of the cremationists steadily increase, and in very many cities societies have been organized.

That, in time, cremation will be universally adopted, there seems no reason to doubt. We have faith in a good custom ultimately supplanting a bad one, and the superiority of incineration over burial is manifest. When the merits of the question are thoroughly appreciated, we shall not feel justified in the storing up disease-germs, and in poisoning earth, air, and water by our present custom of burying the dead. A refined sentiment will teach us the questionable nature of that respect which prompts the erection of a costly marble tribute to the memory of a friend, while his body is left to decompose in a water-soaked grave beneath it.

Science and proven facts attest the wisdom of cremation, and in the words of the Royal Institute of Science and Letters of Lombardy, we believe that its adoption will mark a stage of progress in the march of civilization.

HOW TRAPS MAY BECOME A SOURCE OF DANGER.

A CORRESPONDENT of the *Hydraulic Plumber*, of New York, relates a story of his employment, some time ago, to investigate the causes of a foul smell in a certain bath-room, where other plumbers had worked before him in vain. The pipes had been swabbed out; the closet—an old-fashioned pan-apparatus—had been burned out, and disinfectants applied in vain. The wastes of bath and wash-basin, according to the old practice, entered the water-closet trap, but no sign of leakage could be discovered about this or the waste-pipes. The new plumber, not knowing what else to look for, removed the closet and filled the trap with water. As soon as the agitation had ceased, he measured the depth of the water, and then left it to itself for twenty minutes. At the end of that time the water level had fallen half an inch. Twenty minutes later it had fallen still more, and in an hour the seal was so far broken as to allow a slight current of sewer-air to enter the room. The plumber then left the room for two hours, locking the door and taking the key with him. When he returned the place was full of foul air, and on passing his hand under the bend of the trap, he found a space of about an inch and a quarter between the surface of the water and the under side of the bend of the trap.

The next step was to cut away the crown of the trap, so as to expose the upper portion of the bend. An opening was made 4 in. long and 3½ in. wide, but examination through this showed nothing out of the way until the trap was refilled, when a wet line was observed over the bend, which proved to follow the course of some hairs, twelve or fifteen in all, which had been caught, together with some lint and ravelings, in the slimy lining of the bend. By detaching the lower part of this collection from the walls, allowing it to hang down free in the outlet pipe, the water was observed to drip from the end at the rate of 70 or 80 drops a minute. The whole was then cleared away and the closet replaced, and no more trouble was experienced.

The plumber in question then made some very interesting experiments, to ascertain the amount of conducting substance necessary to cause the emptying of traps in this way, using a small beaker glass in place of a lead trap. He found that with five pieces of No. 80 spool cotton, about 7 in. long, hung over the edge of the beaker, the water level was lowered 3 in. in nineteen hours, and ½ in. in about fifteen minutes. With five long hairs the lowering amounted to 1 in. in ten hours, and 3 in. in about a day and a half. With five hairs and two threads, of the same size as before, the lowering in seven and one half hours was 1½ in. One piece of cotton twine lowered the water ¾ in. in four and one half hours. Two pieces of twine drew over 1 in. of water in two hours, and 2 in. in less than four hours. A bit of cotton cloth, ½ in. wide, siphoned over ¾ in. of water in an hour and a quarter. There was apparently no difference in the action, whether the threads were submerged or floated on the surface of the water.

In the sunshine the drying of the absorbent material was so rapid as sometimes to stop the capillary action, but in the shade it went on steadily, even when the beaker was placed in a strong current of warm air. As nothing is of more common occurrence in drain-pipes than lint or hair, it seems likely that this observation will explain many cases of offensive odours in bath-rooms and bedrooms not otherwised to be accounted for.

POWNCEBY'S PURE WINES AND BRANDIES, as analysed, and especially selected to suit medicinal purposes, may be obtained in small quantities at wholesale prices. Free delivery within fifty miles. Circular and price current by post from POWNCEBY & Co., Wine and Brandy Importers, 183, Oxford-street London, W.—[ADVT.]

Jottings from the Journals

"Th' ingredients of health and long life are
Great temperance, open air,
Easy labour, little care."—*Sir Philip Sidney.*

Retiring Rooms in London.—The *Lancet* has for many years past urged the humanity of providing public retiring rooms for women. The same kind of provision which is made for males ought to be made for females. The importance of the relief afforded is even greater in the case of the latter than in that of the former sex. We are glad to learn that the Commissioners of Sewers have recognised the wisdom of the policy we have long advocated. The *Pall Mall Gazette* deserves credit for the courage it has shown in treating this subject with the requisite degree of prominence. We do not hesitate to affirm that very great and grievous evils have resulted from the neglect to provide the conveniences required. It could not be otherwise; and no one who bestows a serious thought on the subject can fail to see that the omission has been a culpable oversight. Unfortunately, even now that the necessity has at last been perceived, the provision made is quite inadequate. To the railway companies belongs the greatest credit for carefulness in this matter, and we cannot but think that for what they have done they deserve the gratitude of the public.—*Lancet.*

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Use of Glycerine after Bathing.—D. S. Troy, Esq., a prominent lawyer of Montgomery, Ala., writes to the *Science News* that he has derived great benefit from the use of glycerine applied to the body after bathing. He states that he has read the articles on bathing, sun-baths, &c., published in this journal, with great interest and profit. There are some who are troubled with sensitive skins, and it is not practicable for them to use baths frequently, or to employ friction to maintain healthy functional conditions of the skin. Mr. Troy, who has suffered from this sensitiveness, presents the following observations upon the use of glycerine:—"I tried various preventives and remedies with results more or less unsatisfactory, until some years ago it occurred to me to try some of the unguents used by the ancient Romans, or by the Turks of our day; but neither physician nor druggist could tell me how to get any of them, or of what they were composed. Observing the effect of glycerine on chapped or sunburnt hands and faces, it occurred to me that glycerine might answer my purpose. I got my druggist to put one drop of attar of rose into a two-ounce vial of glycerine, and with this rubbed the body after bathing. The result was charming: it left the skin soft, with all of its functions in as full operation as before the bathing, and with a delicious sensation of perfect cleanliness. I have been using it now for four or five years regularly, leading a life more sedentary than ever, and it seems to supply to the skin a vigour similar to that resulting from muscular exercise. It has been of great benefit to my general health and personal comfort. Others have tried it with like results. We are now in the middle of a cold snap such as formerly would disturb me more or less, despite all possible precautions; and last night, after taking a bath, and while enjoying the feeling of great comfort from the glycerine application, I determined to write an account of it for the benefit of thin-skinned humanity. No care is required in rubbing it on, except to see that it is applied to all the skin except the face, and particularly to the soles of the feet. If any remains after the rubbing, it can be readily wiped off with a towel."

Our Bookshelf

"Reading maketh a full man."—*Bacon.*

LITERARY JOTTINGS.

The Students' Guide to Systematic Botany; Including the Classification of Plants and Descriptive Botany. By ROBERT BENTLEY, F.L.S., M.R.C.S. Eng. (London: J. & A. Churchill, 1884.)—The approach of the "floral season" and the practical culture of botany, form events that, appropriately enough, mark the advent of Professor Bentley's latest work. Armed with this little volume, the student who has undergone a course of instruction in systematic botany, and who has been grounded in the details of plant-structure and function, may appropriately proceed to the investigation of the principles on which plants are classified and grouped according to their natural affinities and relationships. Professor Bentley, as is his wont, deals with his subject in an interesting manner, and gives a thoroughly interesting sketch of the chief divisions of the plant world. We can well remember the "Gradgrind" task which ensued when the "natural orders" of plants had to be committed to memory for examination purposes. Such a method of study is unwise; at the best gives a merely temporary knowledge of the subject; and is not encouraged by the present work. To all who have acquired the rudiments of botanical science, and who know plants in a structural sense, this work will prove acceptable and useful. It is fully illustrated, and the engravings have been printed with great clearness of detail.

Hay Fever; a Lecture delivered at the London Hospital. By DR. MORELL MACKENZIE. (London: Messrs. J. & A. Churchill.)—This excellent lecture, by one who is an eminent authority on all topics connected with the ailments of the throat and organs of respiration, is issued at a most seasonable time. The trials and troubles of those who suffer from hay fever begin with the present season of the year, when the pollen of plants is developed, and when the irritating particles are liable to be inhaled. It is needless to add that Dr. Mackenzie treats in a clear and lucid fashion regarding this irritating complaint. He gives the latest views regarding its causes and treatment, and to all who are afflicted with the distressing affection we cannot offer better advice than that they should purchase this pamphlet. They are not likely to regret the expenditure of a shilling in the purchase of much valuable information.

Report of the Medical Officer of Health for Barton, Eccles, Winton, and Monton, for 1882-3. By DR. CARRINGTON.—This is an excellent report, dealing, as it does, with the common causes of illness and disease. If the inhabitants of the districts over which Dr. Carrington exercises watchful care, will "mark, learn, inwardly digest," and follow out his teachings, they will assuredly benefit in respect of being able to show a clean bill of health.

The International Health Exhibition Guide. Issued by the District Railway.—This is a handy and conveniently-arranged little manual, likely to be useful to the visitor to the great show at South Kensington. Its price—twopence—should make it popular.

Society for the Study of Inebriety. Inaugural Address. By NORMAN KERR, M.D. (London: Henry Lewis, Gower-street.)—This address should be read and studied by all who take an interest in the reclamation of the intemperate, and by those to whom the study of intemperance in its hydra-headed aspects is regarded as a necessary preliminary

for the repression and cure of this crying evil. Dr. Kerr gives a full account of the prevailing causes of inebriety, and his style and method are such as to command the attention of the reader. The little work, apart from its medical interest, should be read by all who are in any way connected with the work of temperance reform.

INTERNATIONAL HEALTH EXHIBITION HANDBOOKS.

Another batch of these interesting and useful handbooks has reached us. The series which the authorities of the Exhibition are publishing promises to be of a most creditable character to all concerned. The names of the authors are, in most cases, those of well-known writers on the various branches of hygiene; and, with few exceptions, the writers of the handbooks have kept well in view the class of readers for whom they are specially intended. The work on *Ambulance Organisation, Equipment, and Transport,* by Surgeon-Major Evatt, M.D., is an example of a book written in an eminently lucid style, and dealing with a subject which, year by year, is increasing in public favour. Those who are in any way interested in, or connected with, ambulance work, will find full information given by Dr. Evatt regarding the establishment and working of ambulance aid of all kinds. The illustrations of this book will materially assist the reader's comprehension of the various points treated in the manual. *Water and Water Supplies, and Unfermented Beverages* is the title of Dr. Attfield's handbook. The subject is treated in a manner somewhat too technical, in our opinion, to be of efficient public service; but the volume contains a large amount of singularly valuable information. Two works on *Cookery* are included in the present issue of these handbooks. That by Mr. Sept. Berdmore, on *The Principles of Cooking*, will prove instructive to housewives and to all other persons who are concerned in the preparation of food. It is an important sign of the times that an interest is being taken in the scientific principles which govern the successful practice of the culinary art. That art has till now been largely left to "rule of thumb," and in Mr. Berdmore's clearly written pages will be found many details, the understanding of which cannot fail to be productive of much improvement in the sphere of the kitchen. Miss Wood writes on *Foods and Cookery for Infants and Invalids*, and her handbook is one of high utility. We do not remember to have seen any volume in which such a mass of details regarding this all-important topic has been so cleverly combined. The section on the "feeding of infants" strikes us in particular as being of very full and complete character. *Healthy Schools* is the title of the manual contributed to this series by Mr. Charles E. Paget. There is much in this volume which the teacher will do well to read. Mr. Paget is no extremist, but writes sensibly regarding the needs and necessities of healthy school life. In his book on *Fires and Fire Brigades*, Captain Shaw discourses on a subject somewhat foreign to the general current of the health topics of the series. Doubtless the healthy home should be one well protected against fire, and in this light the last-named book will be perused with interest by those who desire information regarding the working of the fire service of the metropolis and elsewhere. The cheap prices at which these handbooks are sold should make them exceedingly popular among all classes of the community.

International Health Exhibition. — Eastern Gallery. — Perfect Daylight.—Chappuis' reflectors supersede gas in daytime and improve natural daylight. They can be adapted to any window, fanlight, skylight, area light, &c., wherever natural light is impeded owing to the bad construction of premises or the proximity of walls or buildings. They will be found to promote health, comfort, and economy. They can also be used as screens or blinds, and at the same time they act as daylight diffusers. More than 30,000 are in use in London alone. For prospectuses address two stamps to (H.) Chappuis, patentee and manufacturer, 69, Fleet-street.—[Advt.]

Sanitary Appliances, Etc.

ZUCCATO'S TRYPOGRAPH.

The progress of invention is exemplified, no less in directions which concern the saving of time and worry in ordinary life and labours, than in the production of the means whereby the resources of a nation are increased, and its prosperity enlarged and widened. The age is highly fertile in the production of expedients whereby the labour of all classes of workers may be lightened; and in the case even of the literary man, there is seen the attempt to save trouble and to render his task agreeable and easily performed. The "Type-writer," for example, has saved many an author from the pains and agonies of "writer's cramp," and has made the task of composition a veritable pleasure by the introduction of a mechanical means of recording thought, which calls into play sets of muscles widely different from those which are used in holding and manipulating the pen. So also, in the reproduction of manuscripts, the art of the printer has been introduced into our homes under the guise of the useful "Trypograph," which in the hands of the workers in many departments of life, becomes a vertible home printing press, and saves time and money to those who use it.

The "Trypograph" of Messrs. Zuccato & Wolff is a machine in dispensable to the busy teacher, lawyer, musician, and merchant. It consists of a specially-prepared desk, on which the matter to be reproduced is written with a *stylus*, or steel instrument, on prepared paper. The writing is now transferred to a simple frame, in which it is securely and readily fixed by means of bars. A distributor is then inked with printer's ink, and is passed over the written surface, which, in fact, forms a stencil of delicate kind, on which the finest lines of letterpress and drawings can be exactly reproduced. After being thus inked, the first impressions of the writing are taken off on blotting-paper, and the inked surface is now found to be in thorough working order. As fast as a person can lay fresh paper on the printing-frame, and as quickly as the ink distributor can be passed over the prepared surface, copies of the writing or drawing are thrown off. In this way over 5,000 clear and distinct reproductions of any manuscript can be obtained.

The process is cleanly in all its details, and one immense advantage over the ordinary copying processes formerly in vogue, consists in the fact that no washing off is required, whilst the stencil writing can in most cases be preserved, and used afresh for the reproduction of copies at any future date. In our hands the "Trypograph" has proved itself invaluable for the printing of examination papers, and by this means the great *desideratum* of secrecy is obtained, combined with economy and despatch. For the issue of circulars of all kinds, the "Trypograph" is highly useful; and to music teachers, bandmasters, and others, the machine is essential for the easy reproduction of band parts. Its cost can be more than repaid, in a very few days, by the saving it effects on printers' bills for ordinary work. For cleanliness and exactitude in the reproduction of written matter, this instrument leaves nothing to be desired. The "Trypograph" can be had in various sizes, and each machine is sent out from the manufactory complete, and in full working order. All information regarding the "Trypograph" can be had from Messrs. Zucatto & Wolff, the patentees, 15, Charterhouse-street, London, E.C., the prices ranging from 25s. upwards.

PURE TEAS.

We have had submitted to careful examination samples of the teas sold by "The Free Trade Tea Company," of 3 and 4, Great Winchester-street-buildings, E.C. This firm has the credit of selling pure teas at a moderate price. The samples submitted by us to examination consisted of 2s., 2s. 6d., and 3s. per lb., respectively. All of these were pure, free from excess of tannin, and most agreeable to taste. The highest priced of the teas had a singularly pleasant flavour; the lowest priced sample being, however, superior

in quality and taste to many teas of higher price. The "cup that cheers" should above all else be pure; and the "Free Trade Tea Company's" wares may be commended for this latter and essential feature.

THE EMBOSSED TAPESTRY CO.'S NEW SANITARY WALL-HANGINGS.

THESE hangings and coverings for walls mark a notable era in the sanitation of the home. Being impervious to moisture, they can be washed down with safety, while they do not attract or retain dust, and in appearance they are highly artistic. Those of our readers who are interested in seeing what can be done to secure beauty of household decoration, combined with sanitary excellence, should read the pamphlet issued by the above company, which will be sent post-free on application to the company at 123, Milkwood-road, London, S.E.

Our Letter : Box

"Conference [maketh] a ready man."—*Bacon.*

NOTICES TO CORRESPONDENTS.

All Communications for the Editorial Department (including specimens of Sanitary Appliances, &c.), to be addressed to "THE EDITOR OF HEALTH," 74-76, Great Queen-street, London, W.C. Those intended for the Publishing Office to be sent to "THE PUBLISHER," at the same address.

Contributors are requested to send stamps for the return of the MSS. *in event of non-acceptance. Every care will be taken to ensure the safety of* MSS., *but the* EDITOR *and* PUBLISHERS *cannot hold themselves responsible for accidental loss.*

Correspondents are requested to write on one side of the paper only. The EDITOR *disclaims responsibility for the opinions expressed by Correspondents.*

LETTERS TO THE EDITOR.

VEGETARIAN DISHES.

June 16, 1884.

SIR,—Apropos of vegetarian dishes, allow me, through the medium of your valuable journal, to bring to the notice of your readers, and of dyspeptic ones in particular, a very light, easily digested, and eminently nourishing porridge, which has the excellent merit of being easily and simply made as follows:—Procure a milk saucepan, purchase the purest and best sample of wheat meal, with nothing added or taken away whatever; put into the lining or inner vessel the desired quantity of meal; then add either milk and water or water (the former is the best). The next thing to do, is to vigorously incorporate the liquid and the meal. Experience will soon teach the desired consistency and quantity of each, but I may add that the mixture should be rather thin. Now, allow it to stand on the range and boil for two hours, gently. It can now be sent to table, and if any addition is required, golden syrup or good butter will be found tasty. If something better still is desired, then cook some good raisins with it. Raisins give wheat in almost any form a delightful flavour, but, in truth, good wheat-meal porridge requires nothing if made with milk, as it possesses a very agreeable flavour. For twelve months I suffered badly from dyspepsia, and especially from regurgitation of food. The only article that my digestive apparatus would deal kindly with was this porridge. I have since recommended it to dyspeptic friends with the same happy results. Another advantage this possesses, is, that it is a certain cure for constipation. It is, however, of the first importance to cook it well, since by so doing that raw flavour almost inseparable from floury substances is got rid of entirely. The bran is thoroughly softened, and I have a theoretical notion that the well-known valuable constituents of the bran of wheat is taken up by the system to a much greater extent than otherwise would be the case. But be that as it may, it is a valuable food for the dyspeptic and for the healthy alike—cheap and easily made. I have worked hard, both physically and mentally, on it; it is excellent for either, but, *par excellence*, for mental work. F. W. SEERS.

CREMATION.

London, June 14, 1884.

SIR,—Will you allow me a word in reply to your correspondent, "G. B. S. W.," who writes in Friday's number on the topic of cremation? It is evident, I think, from the tenor of his note, that he is unacquainted with the details of the process of cremation, otherwise, we should not find him speaking of that process as one of "conflagration." If he takes the trouble to read the pamphlet on "Cremation" by Sir Henry Thompson, or peruses with care the excellent series of papers on "Cremation," you are publishing week by week in HEALTH, he will see how mistaken are his ideas, both as regards what he is pleased to call the "barbarous" nature, and the inconvenience of cremation. In truth, there is no means of disposing of the dead, which, in respect of simplicity and delicacy, as well as of effectiveness, which can be named in the same breath with cremation. What your correspondent would advise as the alternative—namely, burial in quicklime—has all the objections of ordinary burial as regards cost, and entails besides the occupation of valuable space near towns and villages.

It would be interesting to learn from him in what respect the practice of cremation can be regarded as "barbarous." So far as I can see, it is the only means of burial in which the feelings of the mourners are left unharassed by thoughts of what the dead will assuredly become in a few years, and of what the decay of the body may be the means of accomplishing in the living, by the possible contamination of water supply, and the certain contamination of the surrounding air. Again, as to the remark of your correspondent regarding the future of electricity in providing us with a means of disposal of the dead, it is clear he has never read of Siemens' furnace—described in the last number of HEALTH—in which a body can be silently, quickly, and effectively converted into a handful of ashes; and this, without the slightest trouble, and without a trace of odour. I am not aware that the addition of lime to a body in the manner he describes, would effect its disappearance in a short space of time. If I remember aright, the details of some notorious murder trials revealed the fact that the bodies of the victims, interred amongst lime for purposes of concealment, were by no means affected as your correspondent describes, after a prolonged repose amongst the caustic substance. In a word, what your correspondent suggests, is a procedure which simply retains all the horrors and expense of burial as now practised, without offering any corresponding advantages to the living. As regards the "barbarity" of the burial with lime, when the process is compared with the silent work of the cremation furnace, the less said by him on that head the better for the consistency of his ideas of offence to the feelings of the living. Burning the body by the silent consuming fire of the cremation furnace, is really the closest imitation we possess of the method by which Nature takes the body to pieces underground. As remarked in HEALTH, No. 62, p. 151, decomposition of the body in the earth, is but a slow process of burning."—I am, yours truly,

CREMATIONIST.

LATE SHOPPING IN SUMMER WEATHER.

SIR,—The Board of Management of the Early Closing Association again ask you to be good enough to insert in your columns a short appeal to ladies on the subject of "Early Shopping." We have reason to believe that the notice taken by the Press of our former appeals has had an excellent effect in a large number of households. A growing sympathy is noticeable with this branch of the Society's work, as witness the formation and frequent meetings of the Ladies' Early Shopping Association. It is in this direction that we hope to find a principal factor in solving the late closing difficulty. Tradesmen tell our canvassers over and over again, "Get the people to *shop* early, and we shall *close* early." We are anxious, then, to reduce the amount of shopping carried on in the evening to "unprofitable dimensions," and if, by the help of those ladies who may read this appeal—particularly the wives of working men—we can effect this object, the large section of shop assistants who undergo far too many hours' labour per day, will be within a measurable distance of substantial relief.

In support of this appeal to "Shop Early," I need only refer to the weariness of mind and body, frequently the utter prostration of power, arising from twelve to fourteen hours' service, as the daily routine of a small shop in summer weather. It does not require medical testimony to show what this means to young constitutions. When it is remembered that thousands of young girls—not to speak of an army of young men—are subject to this strain, surely we may indulge the hope that "Shop Early" will be the self-imposed rule of every humane reader of your columns.—I am, sir, your obedient servant, JAMES A. STACEY, Secretary.

Early Closing Association,
100, Fleet-street, E.C., June 12, 1884.

QUERIES AND ANSWERS.

GENERAL.

Veritas.—The question, in our opinion, does not give sufficient details for its ready solution.

Cockermouth.—1. Suitable. 2. Declined with thanks.

Sam Budd.—"Salsify" is a nutritious plant, seldom used at table in England. It is usually eaten alone, fried in butter. Soup is made from it, such a dish being popular at Lyons.

J. Bent.—The Sanitary Paper is a pure article (see analyst's report) and can be thoroughly recommended. As regards stoppage of drains and clearance of drains, you will find a simple apparatus in Class XIV. (No. 296), at the Health Exhibition, exhibited by the "Britannia Rubber Company," for removing obstructions.

C. O.—You would require to have a chemical analysis.

T. Burton.—1. The "Imperial Club" or "Sandringham Club" Tricycles of the Coventry Machinists Company. 2. The "Rucker" Tricycle. 3. The "Traveller" of Singer & Co. are the machines you wish indicated.

G. B. T.—Parker's "Zootomy" would suit you, or Huxley & Martin's "Elementary Biology." Both are published by Macmillan.

A. X.—Not known to us. Consult a local directory.

Estlin.—1. The price varies from £2. 2s. to £5. 5s., we believe. 2. Microscopic preparations adapted to illustrate your studies can be bought in sets from such makers as Cole, Wheeler, &c.

J. H.—1. The "cerebellum" is not to be confounded with the occipital or hinder lobes of the true brain (cerebrum). The phrase "back of the brain" is indefinite, and may mean anything. Scientific accuracy is needful in describing such organs and structures. 2. The cerebellum "co-ordinates" the movements of the body, as in walking, running, swimming, &c. The functions attributed to this part of the brain by phrenologists, are, of course, erroneously allocated.

X.—Not suitable for Health; thanks.

Une Pauvre Vielle Femme.—Give the animal one of the Worm Tablets used for dogs, to be had of druggists. The parasites are at the root of its troubles. Continue its milk diet.

SANITARY.

Upper Case.—A "Health of Towns Commission" was held, and evidence adduced. As regards the London printers, Dr. Guy, we believe, showed that as the ventilation of their offices was good or bad, they were free or affected with lung troubles, respectively.

Ixion.—Good meat has an acid reaction. Use blue litmus paper as a test; the acid will turn the paper red.

S. B.—You mean "braxy" in sheep. All we can add is that for our own part we should not eat "braxy" mutton. Even shepherds do not eat such mutton until it has been salted and dried.

Anton.—The "flour-insect" you saw is the ordinary mite *Acarus farinæ*, mostly found in damp or damaged flour.

G. J. J.—No; pure water should be free from nitric acid. The test is *brucine*.

MEDICAL.

P. P.—A Turkish bath might aid the cure of "blackheads" in the skin by promoting free skin action. See advice given to "Veritas" in Health, No. 60, on this topic. We don't know the the corn solvent you name, but you might give that made by Brewer & Marston, 105, London Wall, E.C., a trial. For warts, touch the wart with aromatic vinegar daily, till it disappears.

Bob.—Probably due to pure nervousness. Use cold sponging each morning, if you have sufficient reaction, and, for a time, take ten drops *Fer Bravais* in a wine-glassful of water thrice daily. This will benefit you.

Eton.—We certainly do not approve of the advice you received. It was contrary to all wise physiological teaching. You suffer from slight weakness, which will disappear by attention to simple health-rules. We advise you to (1) avoid suppers and fluids late at night; (2) Sleep on a hard mattress; (3) use cold sponging each morning; (4) take moderate open-air exercise; (5) avoid stimulants; (6) have cheerful society and mental occupation; and (7) for a time, take a teaspoonful of Fellows' Syrup of the Hypophosphites, thrice daily, an hour or so before food, in a wineglass of water. Let no one persuade you that you are ill; and, above all, steer clear of quacks.

Spero.—See reply to "E. Parker," in Health No. 60.

Syracuse.—No; we should not advise you to attempt to "scale" the teeth. Only a dentist can perform this operation successfully. If you attend to your teeth daily, and brush them morning and night with camphorated chalk, you will not suffer from tartar.

Hoffnung.—Why not try Yarmouth, Margate, or Ramsgate The east coast is bracing, and would suit you. If you wish a thoroughly bracing sea-trip, go North and take a week in one of Mr. Macbrayne's steamers sailing to the far North. Write to 119, Hope-street, Glasgow, for a prospectus of these trips. See our advertising columns. You require rest as well as change of air.

F. W. B.—1. See remarks in "Health Exhibition Supplement," issued with No. 61 Health, regarding woollen clothing. A cotton shirt, with a flannel or woollen undershirt is quite suitable for the warm summer weather. 2. We believe the aperient named is safe and effective. No such drug should, of course, be taken habitually.

Cataline.—There is no method, save encouraging growth by generous diet. You must not overdo exercise, as this tends to restrict growth. Up to reasonable limits, exercise, favouring appetite, will increase growth; beyond this limit it retards it. You may yet grow somewhat; but perhaps you are descended from a constitutionally "small" stock. We do not think the advertisement you enclose need be attended to.

Albert.—We think that a little good claret taken at dinner would do you good. The idea is certainly worth a trial. Let your food be light—soups, &c.—and for a time eat little solid food. Give up all tonics and other drugs, and try the effect simply of taking a pill containing two grains sulphate of quinine an hour before dinner each day. Continue the cold sponging and exercise, and avoid constipation above all things.

Lex—Chorea.—Pay strict attention to your diet. No remedies are of any avail, where overwork exists, such as you describe in your case. Use cold bathing each morning, but don't wet your head. As a rule, chorea appears only when the health is low. As a tonic in this affection arsenic is indicated, but should only be taken under medical supervision. In your case, we should expect relief from rest and change of air.

Edin.—No doubt you are perfectly correct. The functions participate in the healthy requirements of the body. See advice given to "Eton" in the present number of Health. There is no work outside the list of professional works to which we can satisfactorily refer you.

Oxonian.—Take more open-air exercise, and try the effect of cod-liver oil and iron for a time. Any druggist will add, say, three drachms syrup of iodide of iron to six ounces of cod-liver oil, for you. Take a dessertspoonful of this after meals; you are in want of such a tonic. Bathe the nostril also daily with tepid water, to which a little Condy's Fluid has been added, and continue the Vaseline each night.

Nondescript.—Symptoms are due probably to slight overwork. Rest is necessary. Drink freely of potash water, and avoid stimulants. Food to be light. Avoid constipation especially. Write again after a trial of this advice. A hot hip bath should be taken at night if the pain is severe.

Sartor Resartus.—1. Let the patient's food be largely fluid in nature—milk, soups, puddings, &c.—and especially when the attack threatens. Pepsine might be tried after the food, and the meals should be taken in moderate quantity, and be on the side of limitation, rather than excess. Better to eat little and often, than to suffer from engorgement. Rest after food is absolutely essential. The symptoms are those of painful digestion. We should advise avoidance of all vegetables for a time. Glad to be of any further service. 2. The pain named is also a symptom frequently seen in indigestion. Try the mixture prescribed to "E. C. P." in No. 62 Health.

H. F.—Advice given above regarding food to "Sartor Resartus" should be followed by you. In addition, we should strongly recommend you to try the effect of an iron tonic. Take fifteen drops *Fer Bravais* thrice daily after food in a wine-glass of water. Your ailment probably arises from a relaxed state of the throat or upper part of the windpipe.

Thankful.—All we can say in answer to your inquiry is to advise you to take plenty of nourishing food—milk, puddings, &c., and foods containing starch (potatoes, &c.). The cod liver oil should be continued. Rest after food is essential, and as regards exercise, remember that this favours fatness only in so far as it stimulates appetite. Carried beyond this stage it diminishes fatness.

Plump One.—It has a tendency to disturb digestion, and acts as a soporific or sleep producer. No drug of the kind should be taken for any length of time.

T. E. D.—See and follow advice to "Eton." Your case is one for attention to digestion and to ordinary rules of health. Try a vegetable diet as a cure for constipation. The pamphlet you enclose is that of a well-known quack firm. A quack denouncing quackery, is only a trap for the unwary, and you observe at the close the cloven hoof creeps out in the shape of the usual trash offered for the usual

fee. We regard you as one perfectly fitted for the step you contemplate taking. If you wish address of a consulting physician, we can send you such on receipt of stamped, addressed envelope.

BRIGHTON.—We hardly understand what you require. Don't confuse signs of health with causes which are clearly of mental origin. From the physical side, we can only advise you to take plenty of open-air exercise, and engage your mind in healthy occupations. You should feel thankful that you are in good health, and should trust simply to self-control. It is absurd to take drugs to repress healthy vigour.

W. TUCKER.—We should advise you to substitute claret, at meals, for beer. Try the tonic recommended to "Eton" in present number of HEALTH; and if not bettered let us hear from you. We have seen good effects follow the use of this tonic in cases like yours.

H. WILSON H.—You are only worrying your mind over a matter of no consequence. The secretion is not what you suppose it to be. Avoid constipation and you will get quite well. Simply see to your general health, and occupy your mind in healthy pursuits. The medical opinion you had was sensible and correct. Why not be satisfied?

PENRHYN.—We should give the children a change of air and take them to the seaside. Cod-liver oil combined with iron should also be given. The disease is only a manifestation of some bodily weakness, which change of air, and Cod-liver oil will, together, be likely to cure. As a local application, after removing all the hair from the patches and surrounding parts as well, the following ointment might be used:—Carbolic acid (pure); nitrate of mercury ointment; and sulphur ointment, of each, one ounce. Mix to form an ointment. For children under ten, the quantity of sulphur ointment is to be *doubled* or *trebled*. A little of this to be rubbed each night into the patches, where the ring-worm is present. See that the children do not mix with others, so as to avoid conveying the disease, and remember that all local remedies are of no avail without bracing up the constitution.

PENELOPE.—Cayenne pepper, taken continually, is apt to induce irritation of the stomach and digestive system at large. You certainly exceed the normal and natural use of this condiment.

W. JONES.—There are two forms of measles—mild and severe. The latter is often named "black measles." Chest symptoms are apt to arise after the fever, if care is not exercised. Milk diet, avoidance of cold, room to be darkened, and some simple remedy to aid the skin action is all that is usually required in the way of treatment.

LUDOVIC.—Don't be over anxious. All will be well, provided you simply attend to ordinary health-rules. The cold bath should not be omitted if you have sufficient reaction. Don't wet your head, however. Be moderate in your exercise. Dumb-bells not needful or advisable in your case. The ordinary sponge-bath, and not shower-bath, is what you require. Take Pepsine with your food, and let your diet be light.

NERVOUS.—See, and, follow, advice to "Eton" in present number of HEALTH. Leave off the pills, and take the tonic indicated in advice mentioned. Above all, don't be nervous or morbid. There is no ground for your fears.

YRUEH or YORICK (signature very indistinct).—Chills often produce the skin appearance to which you allude. Wash with tepid *soft* water and Pears' Soap. At night use pure Vaseline to the skin, and attend to your general health. Excessive breaking of the skin after exertion will produce what you complain of.

NEWTONIAN.—What you describe is not the effect of the tonic, but the results of your general health-disturbance. Take the tonic (for a time only) twice a day, an hour before meals, in plenty of water. Let your food be very light, but nourishing, and take moderate exercise. Continue the cold sponging, of course. Let us hear how you are in a few weeks.

G. R. H.—Food to be very light for a time—milk, soups, light puddings, eggs, &c.—and mostly fluid. Take Morson's Pepsine after food to assist digestion; rest after food is absolutely necessary in your case. Give up all quack medicines, and you may find that a little good claret, taken at dinner, will assist digestion. Total abstinence is a good practice for the majority, but not for all. Avoid vegetables.

ALICE COOPER.—(Letters requiring advice are to be addressed to the *Editor*. You do not surely suppose the Publisher edits or superintends a journal?) You have already been replied to in HEALTH, No. 62.

SCULPTOR.—In such a case the only sure fashion of securing healing is to have the wound enlarged, thoroughly washed out with antiseptics, and healing promoted. Why not see a good surgeon in Carlisle, Edinburgh, or Glasgow, and have the matter put right at once? The longer you delay the more difficult will be the cure. Glad to send you address of Carlisle, Edinburgh, or Glasgow surgeon, if desired, on receipt of stamped addressed envelope.

TREMULOUS.—A very common case, due as often to overwork and a weak, nervous state, as to any other cause. Use cold sponging each morning, take moderate open-air exercise, and you will find the tonic recommended to "Eton," in present No. of HEALTH (taken for a time), effect a cure. Let us hear how you are later on.

CARL ST. J.—Simply, for a time, keep a little pure Vaseline or olive oil constantly applied to the parts. You will find that will restore them to the normal state. See strictly to cleanliness.

PLEBEIAN.—Don't be alarmed. You are, in all probability, quite well. Take occasionally, say for a week at a time, with intervals of three or four weeks, the iodide of potass mixture recommended to "Charles Plimsoll" in HEALTH No. 61.

ANXIOUS INQUIRER.—Answered last week. Reply was omitted through inadvertence.

R. P. CHILDS.—We can hardly give you the full information you desire here. If you send private address and stamped envelope, we will gladly supply you with details. We did not mean "sebaceous" material. Read up the anatomy of the region, and you may find a reference to the "gland," the secretion of which we alluded to. It is of no importance.

FULHAM.—Depends on the exact form the malady assumes. We should say that, in the majority of cases, potash water would do no harm.

AKREOPHAGIST.—Yes; but why not try the malt extracts, which are now made of great purity?

HAMLET.—1. There is no cure for toothache (when the teeth are affected, as in your case) save extraction. Various remedies for toothache have from time to time been described in HEALTH. Try applying a little pure carbolic acid on a piece of cotton wool to the cavity of the tooth. Be careful the acid does not come in contact with your tongue or gums. Frequently, toothache is relieved by a dose of aperient medicine. 2. It is evident you require glasses, and you should lose no time in having your eyes carefully fitted. Try Mr. Browning, 63, Strand, London.

H. STANLEY.—Attend carefully to your digestion, and take fifteen drops *Fer Bravais* thrice daily in a wineglass of water. Bathe your feet occasionally in tepid water, in which a little boracic acid, in powder, has been dissolved.

ANXIOUS ENQUIRER (Rotherham).—We fear in such a case there is nothing in the way of drugs that can better the patient. It is a case in which there is a necessity for the watchful care of a medical man, more especially as the symptoms you name are present. Such cases, besides, often exhibit variations which only the eye of a practitioner can detect.

ROSE E. RAYMOND.—The irregularities complained of are by no means uncommon, and, in many cases, seem to be natural to the constitutions of those who exhibit them. Our opinion is that the matter should cause no concern so long as the general health remains good. Rest, at periods stated, and the tonic above ordered to "H. Stanley," should benefit you. Glad to be of any further assistance if desired.

MNEMONICS.—We are decidedly of opinion that a change of air would do good. A mild seaside resort—Hastings or Bournemouth—would be likely to suit. We think, however, that it would be wise in you to have a medical examination and consultation before deciding the locality. It is just possible that judicious advice would indicate the exact cause of the ailment, which seems to be connected in some degree with the functions of the kidneys. If desired, we can send you address of a reliable physician on receipt of stamped addressed envelope.

JENNIE.—There is no need for you to go to the Scilly Isles for a mild resort which would benefit you. It is far more likely that such a place as Bournemouth, or the Isle of Wight, would suit your ailment. Try the "cod-liver oil emulsion" instead of the oil itself, if the latter disagrees with you. Make vegetables a staple part of your diet, and eat fruits, as they seem to suit you. This will enable you to avoid aperient medicines.

W. M'N.—See and follow advice to "Veritas," in HEALTH No. 61. You should have frequent hot baths, and look well to the condition of your skin.

MILLIE HARFORD.—We are afraid from your description that the skin-defect of which you complain is part and parcel of your constitution. We should not think it ought to trouble you, and it is certainly in no sense an infectious condition. We should simply recommend you to wash with Pears' Soap or with the Albion Milk and Sulphur Soap, and to use soft water. A little pure vaseline, applied to the face at night, would do no harm.

DESIDERATUM.—We shall be glad to hear of your experiences when you can send details. You would see the reverend gentleman had been summoned in Manchester. Twenty-five shillings for a box of rhubarb pills and a cough mixture is, it must be confessed, an exorbitant charge. But if people will consult quacks and those who are associated with them, they must bear the consequences of such folly.

DULCIE DACRE.—Have your ears thoroughly examined. There

[*Continued on page* 176.

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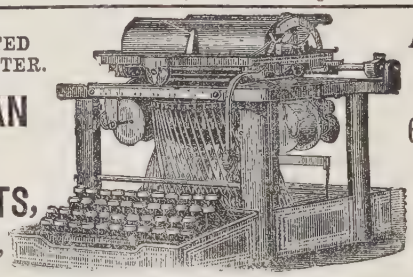

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ANALYST'S REPORT

"As the result of a **most careful examination** we are enabled to state that this Paper contains **nothing whatever** of a **deleterious or injurious** nature, it is, in fact, of **GREAT PURITY**, and altogether suitable for the purpose to which it is intended to be applied."

(*Signed*) A. H. HASSALL, M.D. LON.
E. G. CLAYTON, F.C.S.

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may be a collection of wax therein, which careful syringing will clear out. A drop or two of glycerine placed in the ear at night may relieve you and soften the wax and render its removal easy. As you evidently require a tonic, take a teaspoonful of Fellows' Syrup of the Hypophosphites, thrice daily, in a wineglass of water, an hour before food. Rest may be necessary, or a change of air.

HOPEFUL.—Difficult to ascertain the cause of the hair-discolouration—always presuming it does not arise from any dye. We should advise you to try the effect of *Fer Bravais* as a tonic, as ordered to "H. Stanley" in present No. of HEALTH. This may benefit what you complain of. If not bettered in a week or two, send fuller particulars regarding occupation, habits, and how often the discolouration appears.

MOORLAND WILLIE.—No need to be afraid or despondent in any way. See and follow advice to "Eton" in present No. of HEALTH, and let us hear how you are in a few weeks' time. You will get well by attention to rules indicated.

H. THOMAS.—Rest as much as possible, and don't stand for long periods. In bed, sleep with the feet on a pillow, or have the foot of the bedstead slightly raised to favour the return of blood in the veins. If the veins are permanently enlarged, you must get fitted with an elastic stocking at a good surgical instrument makers (*e.g.*, Khrone & Seesmann, Duke-street, London, W.).

COLD LIMBS.—Answer inadvertently omitted from No. 61. You were replied to in No. 62.

ALPHONSO.—See and follow advice to "Moorland Willie," above. You should wear a suspensory bandage. No need to be afraid or morbid.

VICTOR.—The sedentary habits you describe are such as unfit you for over active exercise either early in the morning or at other times. You must not imagine that a man all day at the desk is thereby fitted to take active exercise without first gradually preparing himself therefor. You make demands on a strength which you do not possess. You are morbidly excited over your ailments, which will all gradually disappear by attention to ordinary rules of health—care in food, exercise, ventilation, sleep, &c. No wonder you feel drowsy at your desk in the afternoon if you begin "exercise" at five a.m. Exercise a little common-sense, and regulate your habits. Look to your digestion, and take Pepsine or Murdoch's Digestive Powder (367, Paisley-road, Glasgow) with your food.

MARJORIBANKS.—Try a change of air to the seaside or elsewhere, or try sniffing Dr. Dunbar's "Alkaram." A little tonic medicine would also do you good. Inhalation of iodine vapour (see reply to "Alice Wood," No. 62 HEALTH) would be serviceable, if the other means fail.

J. G. CARTER.—Try the following powders:—Sulphide of lime, twenty-four grains; sugar of milk, half an ounce. Mix well; keep in a stoppered bottle, and take five grains (or as much as will cover a sixpence) of the powder, every four hours. Your ailment arises from digestive irregularity, and as you confess you are somewhat irregular in this way, look to your diet, eat sparingly, and let your food be light. A partly vegetable dietary might do you good. Avoid constipation, above all things.

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HEALTH

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, JUNE* 27, 1884.

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Notes by the Way

"Health is the foundation of all our physical happiness."—*Herder.*

The "mackerel scare," to which we made allusion last week, has apparently received its quietus. It seems that the newspaper reports, which stated that notices, warning the public against using mackerel, had been posted up at the London hospitals, were, after all, mere fabrications. Possibly, with the "dull season" at hand, some journalist, with a faculty for the invention of news-items, utilised his powers in behalf of his profession. Be that as it may, the "mackerel scarce," in so far as regards the worm-tenant of the fish which was believed to be capable of causing cholera, may be relegated to the region which receives, among other *rejectamenta*, the annual, but discredited, tales of the sea-serpent's appearance. Bad mackerel, like bad salmon, or tainted fish of any description, may cause illness, it is true; but that such results do not accrue from any parasitic worm, and that such parasites as ordinarily inhabit our food-fishes are perfectly harmless to consumers, are two facts beyond dispute. All fishes contain thread-worms and other parasites. As in the case of grouse, it is difficult to find a fish which does not act as "host" to such small fry. But the process of thorough cooking effectually kills such parasites; and even if a few were swallowed alive, no possible harm could accrue. Happy the philosophic mind who, discovering that he had just swallowed a full-blown caterpillar with his salad, remarked: "It's only protoplasm, after all; and will soon be converted into *me!*"

The "hay-fever" question seems to be gathering strength—if one may judge from the persistence with which cures for this affection are being ventilated in the journals, lay and medical alike. A Mr. Sharpe, writing to a contemporary last week, speaks of the beneficial effects of "strong Scotch snuff." This remedy was taken when the sneezing was violent, and had the effect of relieving the paroxysms, on the principle, as Mr. Sharpe remarks, of *similia similibus curantur*; but more important is the announcement that snuffing is a *preventive* of the malady. By beginning to snuff in the spring, before the "hay-fever" season began, Mr. Sharpe escaped his usual attack, and for more than six years has been free from his ancient enemy. Several friends who practised snuff-taking, under similar circumstances, have also escaped "hay-fever." It is probable this remedy will not operate with equal power in every case, but the application is so simple in its nature that those of our readers who are sufferers from "hay-asthma" may be glad to possess the information thus detailed as a possible means of prevention or cure.

Dr. Paget, of Great Crosby, says he finds "inhaling a mixture of equal parts of carbolic acid and liquid ammoniæ very grateful" when the irritation of the nostrils in hay-fever is troublesome. A piece of sponge saturated with this mixture is kept in a stoppered bottle for convenience in sniffing the vapour. The use of Dr. Dunbar's "Alkaram," sold by every chemist, serves a like good purpose in "hay fever," as well as in ordinary "cold in the head."

An interesting address on "The Ethics of the Skin," was given by Mr. Malcolm Morris, at the Health Exhibition, last week. It is now an old story that the modern "Æsthetic taste"—whatever the expression may mean—is given to showing a preference for skin tints which, so far from being compatible with health, are the signs of disease. Sallow complexions, "washed out" faces, and yellow and bilious tints are, certainly, the characteristics of a certain school of painters who, apparently, find their ideas reflected in the society of the day. Not so long ago, a medical critic showed that certain pictures of last season depicted the human frame in various stages of decline and ill-health; the works of art in question, belonging, of course, to the "Æsthetic" school, and one of these works representing, if we mistake not, the parable of the foolish virgins. Mr. Morris, in denouncing the standpoint which chooses disease and not health for its artistic standard, will have the sympathy of all sensible persons. The "greenery-yallery" tint of skin may be the criterion of æstheticism—it is certainly not that either of health or (when depicted on canvas as a type of "beauty") of artistic common sense.

A series of experiments, carried out in the vaults of St. Michan's Church, Dublin, and detailed by Dr. Cameron before the Irish Academy of Medicine, are highly instructive from their bearing on the question of antiseptics. Bodies deposited in these vaults, said Dr. Cameron, dried up, rather than decomposed. This result is possibly due to the extreme dryness of the air of the vaults, but a complete absence of dust was also observable. Experiments were made on tubes containing infusions of vegetable matters. These infusions were placed in the vaults, and were of such a character that in ordinary air they would have quickly developed living organisms. After six weeks' exposure to the air of the vaults, seven of the tubes were found to have undergone no change, the remaining five tubes showing the presence of living organisms. In such a situation, the stillness of the air, combined with its dryness, would therefore appear to prove unfavourable to the development of germ life. Dr. Madden, speaking at the meeting above alluded to, remarked that at Palermo, two miles of galleries were lined with the dead bodies of monks; the bodies, in this latter case, being also preserved by the extreme dryness of their surroundings.

We have commenced with the present number of Health, the publication of a series of papers on the

"Health Resorts" of the Continent. Last year, it will be remembered, we described the chief characteristics of health-resorts at home; and it is hoped that the publication of the present series of papers will prove useful to those who meditate a stay abroad during the holiday-season. Special attention will be paid to the medicinal characters of the waters for which certain of the foreign resorts are famous.

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THEY are wise in their day and generation at the Hague. When a case of infectious disease occurs in any house, the householder is obliged to exhibit on the door a notice to that effect. The nature of the fever is also stated, and the house, for the time being, is therefore specially guarded from becoming a source of infection. It would seem that foreigners exhibit a progress in certain aspects of sanitation to which we are, as yet, comparative strangers.

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SIR JAMES PAGET'S memorable address on "The National Value of Public Health," delivered at the inauguration of the Juries of the International Health Exhibition, is a piece of splendid pleading for increased education in sanitation, on the plea and ground of physical well-being forming the great factor in inducing national prosperity. We shall publish Sir James Paget's address in HEALTH, the first instalment of the discourse appearing in next week's issue of this journal.

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A CORRESPONDENT of the *Lancet* asserts that the hair of the telegraph clerks in a large office in the West of England turns grey and falls off at an early age. He inquires the reason of this premature capillary decay; and asks whether it is to be attributed to the nature of the employment, to the "shock" ensuing on the changes of working hours from day to night and *vice versâ*, or to electrical influences? To answer such queries would necessitate the knowledge of the state of health and head-gear of telegraph clerks as a whole. The experience of one office alone can afford no data sufficient for determining the causes of the affection in question.

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"BACTERIA in Bricks" is the latest idea of the localisation of disease-germs. A foreign scientist finds these germs not only on the surface of bricks, but in the inside of these structures. No mention is made of the exact character of the bacteria which inhabit the bricks. Presumably, they must have been contained in the clay from which the bricks were manufactured. There need be no alarm felt at the announcement thus made. All "bacteria" are not capable of producing disease; and it is probable that the "germs" of the bricks belong to the class of harmless forms of life which teem in air, water, and soil, and which are powerless to affect mankind in the production of disease.

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SPEAKING of "germs" leads us to note that recent experiments on the effect of cold on these minute forms of life reveal some highly interesting details. Germs of various kinds have been subjected for prolonged periods to intense cold. The *bacillus*, or germ of splenic fever, was as active after twenty hours' exposure to such cold as before the experiment. The germs of the matter used in vaccination, however, did not withstand this low temperature. The vitality of these living specks thus varies, as does their effect on the animal frame.

Original Essays

"Life is not to live, but to be well."—*Martial.*

THE NATURE OF THE MEMORY.

BY DR. ANDREW WILSON.

IN my last paper I directed attention to the high importance of noting the fact that the memory under ordinary circumstances is dependent on the bodily health, and is influenced in a very striking way by various bodily conditions, among which over-work and "loss of tone," are the most familiar. It is true, of course, that in certain individuals, bodily illness may only serve to stimulate the mental powers. There are cases on record in which prodigious mental feats, accomplished in the way of memory-exercises, as well as in other mental directions, have characterised men and women labouring under severe illness. But such instances of mental action are, at the best, exceptional in their nature. They form the exceptions which go to prove the truth of the rule. Commonly, bodily illness and langour, an overdose of alcohol or tobacco, or other excess, acts injuriously on the memory and on the other mental powers, and for a time incapacitates the subject of the excess from the normal, and certainly from the healthy, exercise of his mind-powers.

Various correspondents have forwarded for my perusal details of extraordinary feats of memory on the part of themselves or their friends. While thanking the writers of these communications, I may only add that most of the instances they adduce have been frequently paralleled, not only in modern, but in classic times. There are individuals who, after hearing a poem once repeated, will correctly recite the piece. Seneca mentions a case in which a man who, hearing a poet recite a new poem, in his turn repeated the verse after an interval, and claimed it as his own production; the author, of course,—better poet, perchance, than "memoriser"—failing to emulate the example of the plagiarist. When Voltaire came to the King of Prussia to read a new poem of considerable length, an Englishman, noted for his prodigious memory, was placed behind a screen, within hearing of the reader. The listener, after one hearing of the production, was able to repeat the poem perfectly from beginning to end. Themistocles was said to possess the power of naming all the citizens of Athens. Cyrus is alleged to have had the power of recognising and naming every soldier in his army. Such examples, real or exaggerated, are not without their parallel in our own day, among all ranks and classes of society, but they constitute examples rather of abnormal than of natural memory. The ordinary mortal need never envy or emulate such prodigious powers of remembrance. It is sufficient for the vast majority of educated persons that they are able to perfectly utilise their memories for the full and perfect execution and performance of the ordinary duties of life. And it is to this useful and practical end that the efforts towards memory-improvement should be directed. We desire, not phenomenal powers of memory, but powers and abilities which shall stand us in good stead in every walk of life.

One point which is, I am convinced, of extreme importance, in the culture of memory is connected with the habit of forming what may be called ordinary and useful "associations" or groups of thoughts. A striking feature of "memory," ordinarily studied, is the fact that by linking the idea we desire to be recalled to another idea, or series, the original idea is readily reproduced. What is the

meaning of this peculiarity of the human mind? Why, it may be asked, should associations and "links" serve a useful purpose in the remembrance of facts and ideas? Why is it that by affiliating one idea to another, both may be remembered, whereas, set in solitary state in the mental domain, or left unconnected, both are forgotten? In wellnigh every system of memory-training such associations have formed a notable feature. The schoolboy who cannot recollect 1815 as the date of Waterloo will remember the date by thinking of "water" and "15." The ancient Roman who turned the stone of his ring inwards towards the palm of his hand, that it might remind him of something he desired to bear in remembrance, illustrated this principle of "association." The person who, in the familiar practice of mnemonics, ties a knot on his handkerchief, in his own way exemplifies the same habit—although, as the joke goes, a second knot is occasionally needed to bring to mind the reason of the first.

In the light of these queries, an interesting speculation is opened up concerning the nature of memory. It would seem as if the memory-field of the brain, resembled the ocean surface in respect of its smooth nature, destitute of the slightest clue or indication of direction, extent, or limitation. A single mark means nothing in the waste of waters, just as a detached light may only confuse the sailor at night and lead him astray. But the relations of various lights or land-marks, and the connection which becomes evident when several marks are brought into relation with one another, serve to render clear the way of the "trackless deep." So is it, I conceive, with the memory powers, and so it is with the material basis of brain on which memory operates, and within which, all its operations are carried on. The connected series of facts, ideas, or recollections, serves, like the mariner's set of guides, to show the mental way clearly enough, where the isolated and detached light or mark fails. The "memory-links" we familiarly use serve a like purpose, because, in the nature of things mental, our life and thoughts present us with a connected series of facts, and not with isolated and separated ideas.

But we may find support for this argument in a consideration of the physical structure of the brain itself. It is the outer layer of the organ of mind, which is the active, working part of the great central nervous centre. This outer layer of the *cerebrum* (or "greater brain"), consists of *grey matter*. It is the layer in which the *nerve-cells* are situated. These cells, wherever found, whether in jelly-fish or man, are to the nervous system what the batteries or cells are to the telegraph-system. They are the store-houses, the manufactories, of the nerve-energy, which, liberated in various directions, speeds along nerves to stimulate, here a muscle, there a gland, and there a blood-vessel. The nerves themselves, are mere "conductors" of this mystic "nerve-force." It is in the "nerve cells" that the force is generated, produced, and stored.

The nerve-cells are thus the seat of nerve-force and of thought itself. Those of the "grey matter" which exists in the *frontal* lobes (or forehead-lobes) of the brain are probably the seat of the highest intellectual operations. It is here, probably, that the memory-powers, in common with many other mental faculties, dwell. This much, at least, is rendered probable by recent researches into localisation of the functions or duties of the brain. Now, when this "grey-matter" of the brain is microscopically examined, what is found to be its structure and disposition? When the grey matter (*i.e.*, the nerve-cells) of the frontal lobes of the brain are diseased, it is then that insanity of the most hopeless kind supervenes. We see the animal, deprived of these lobes, to become sullen and brutal, to lose all its intelligence and memory, and to become practically an automatic creature. That the seat of the recollective powers probably dwells in the forehead brain-lobes there is every reason to believe; and when the minute nerve-cells here, as elsewhere, are examined, they are found to present us with a mesh-work of inconceivably intricate pattern. No one cell exists as a solitary unit. The hundreds of thousands of nerve-cells are bound up in a delicate network, the ramifications of which are well nigh past belief.

Hence we find, apparently, our explanation of memory, in this interesting fact of brain-structure. Memory consists of a series of associations; facts and ideas are linked together, because the cells which store up and receive these ideas—because the material basis of "mind"—is a connected network of structural units, all bound together in closest sympathy, and all working in a harmony that baffles our furthest thought to trace or depict.

Memory is thus aided by "links" and "associations," because the nerve-structures which operate in its practice are connected together in an intricate series. As no one nerve-cell is separate from its fellows, so no one idea may be conceived to be isolated in the mind which works through nerve-cells, from the other ideas which have been associated with it. Such thoughts I venture to suggest as the answer to the question, "Why is memory a matter of 'association,' and not one of detached ideas?"

THE TRICYCLE, AND ITS RELATIONS TO HEALTH.

By Various Writers.

THIRD PAPER.

PHYSICAL EFFECT AS COMPARED WITH OTHER SPORTS.

By Sigma Smith.

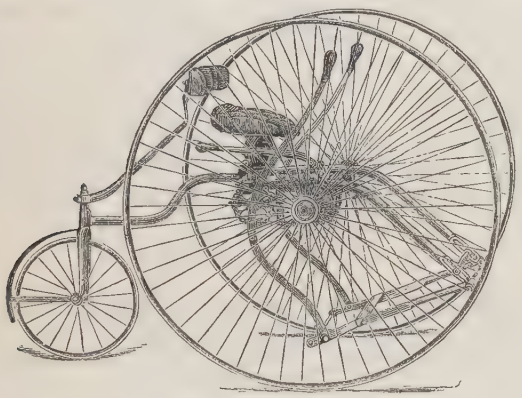
In my last week's article I extolled, but not a whit too highly, the delights and advantages of tricycling *per se*, and I will now seek to show that it can compare with any other sport in all essential particulars, in a more than favourable manner. In this category I prefer to term tricycling a "sport," but this is merely done for the sake of comparison, as, in truth, the practice takes a much higher position than that usually allotted to a mere "sport."

The tricycle *adds materially to the natural powers of man*, and does this in a manner most obvious and direct. It is true that, seated in a railway train, a man can travel faster and further in a given time, but then he poses as a mere weight of luggage, as it were; he sits still and the engine bears him on its way with its other load. The same may be said, though in a somewhat modified way, of driving, and also of riding on horseback. In each case, the man is merely carried bodily from place to place, by means of another power, *not* his own.

On the tricycle, on the contrary, the man actually does all the work of propulsion himself, and he alone applies the needful force to secure his passage onward. If a man could fit himself with wings, or what will perhaps serve as a better analogy, if a race of men were born with wings enabling them to fly from place to place like the swallows, provided they were also possessed of all the mental power of the rest of mankind, it follows almost as a matter of

Swimming and Ling's Swedish Exercises.—Mrs. Florence Williams, Certificated Teacher. Schools and private families attended.—The Crown Baths, Kennington Oval, S.E.

course that the winged section of mankind would be looked upon as superior in every way to those less favoured, and would be regarded as a higher order of beings—a true nobility—and this would be mainly because their powers of locomotion would be of a higher class. One of the leading desires and, indeed, instincts of the human race is to travel from place to place with ease, rapidity, and freedom, and this has led to the production of the locomotive which can travel at the rate of sixty miles an hour, and the Ocean liner that can steam across from England to America in seven days. It is the same indefinable longing that leads us all to feel interest in contests of speed, whether it be two boys running a race, the Derby, or a race between two rival Ocean liners across the Atlantic; and it is this same longing which has led to the punishment of criminals by confining them within a certain place, thus checking their gratifying the instinct of travel, such being intuitively accepted as a means of severe punition of almost universal application. All alike—



Singer's "Velociman," worked by hand only. (Suitable for the lame.)

even the veriest bookworms—are more or less tinged with the feeling, and the cripple is chiefly pitied for his impotence in this respect; and it all serves to establish the fact that we have a natural craving to add to our bodily powers in regard to locomotion. We cannot fly—yet what a longing there is to do so—but we can ride the tricycle, and by so doing we can add immensely to our natural physical development, and hence we can place ourselves in a position very much superior to that normal to us. The possession of a tricycle places a man at a certain decided advantage, and enables him to pass over a greater area of the surface of the globe, and to visit places that would be otherwise altogether out of his reach, and to move about faster and further than on foot. In short, a tricycle is an aid to the bodily powers just as a telescope is an aid to the visual organs, or a windlass is an aid in moving heavy weights. It is, in reality, the embodiment of the fascinating idea of the Seven Leagued Boots, or the fabled Flying Carpet of the "Arabian Nights;" and, generally speaking, it "adds wings to the feet." You have occasion to visit a place say a mile away; to walk it would take you quarter of an hour, and you would feebly pass one leg before the other, covering at each stride say 2 ft. 6 in. To go on a tricycle, on the other hand, I merely step into the saddle of my "Carver" and pass the pedals easily round and round, and ride the distance in five or six minutes; for a man who can walk a mile in a quarter of an hour would find no difficulty in riding that distance upon a tricycle in five minutes, or even less if he were much pressed, for, at the movement of each foot, instead of the mere laboured pace of 2 ft. 6 in., a distance of 8 or 9 feet is gone over by the driving wheels. The advantages are multiplied as the distance is increased, and even the lame may find (*see illustration*) the principle of the tricycle utilised for their ready and quick conveyance.

Having thus shown that the tricycle is something more than a mere sport, I will seek to draw a comparison between sports proper and the practice of riding the tricycle.

Of course, we know that the primary object of sports and pastimes generally is to induce exercise, and no doubt this is arrived at, but there the matter ends, beyond, perhaps, the gratification of a feeling of competitive emulation in being able to carry on the particular phase of sport, according to certain arbitrary rules, more skilfully than our compeers similarly engaged.

Take cricket, for instance, our so-called national pastime. In what way is a man better in his general anatomy if he is able, by a knack, to adroitly stop a ball by the aid of a willow bat, and send it flying through the air to such a distance as to allow him the opportunity of running a certain number of times from one set of three sticks fixed in the ground to another set at a certain distance away, managing to be at his appointed place before the ball is finally thrown back by one who has been actively pursuing it? It is true that a considerable amount of exercise is attained, but nothing more, for there is no indefinable longing in the human breast to be able to hurl a ball to a distance and to score a large number of "runs." I have not a word to say against cricket as a mere exciting amusement, but maintain that it it is nothing more nor less than an amusement, and it in no way adds to the powers of man, or tends to a higher development, nor does it add any desirable quality to his normal condition.

Lawn-tennis, foot-ball, golf, and kindred sports may be classed with cricket in this category, as all alike hinge upon a special dexterity in playing with a ball made of some special substance according to certain arbitrary rules.

The actual exercise gained from the pursuit of all sports involving playing in various ways with an erratic ball is of a somewhat spasmodic character, and is not by any means equably sustained. At one moment the player may be jumping wildly in the air trying to catch the ball, or rushing furiously after it to fetch it back, or to kick it; and then for a long interval he may be standing by watching others going through the same processes. The game is all the time carried on in the same field, and there is no change of scene, and the only exhilaration is the gratified vanity attendant upon the applause of lookers-on when any specially adroit feat with the ball is performed.

Rowing takes a higher place in the list of sports, as it serves in a measure to enhance the powers of man, inasmuch as it enables him to conquer the powers of the waters. Who has not yearned when standing on the shore to stem the waves and battle with the surging sea, and roam across its bosom to lands afar? This feeling is, of course, much modified when a comparatively narrow river is concerned, but still the leading principle is not altogether removed, and the same may be said of swimming. Both boating and swimming, however, though they add to man's natural functions, are laboured and slow, and possess little that is exhilarating, nor do they give an idea of palpably added power.

SCOTT'S MIDLOTHIAN OAT-FLOUR.—Messrs. A. & R. Scott, of Kingston, Glasgow, and Finsbury-square, London, have prepared a singularly pure and nutritious "Oat-flour," which bids fair to take high rank among the food products which are specially adapted for infants and invalids, and for the use of dyspeptics in particular, whose digestion is weak, and whose stomachs refuse to assimilate foods of ordinary kind.—ED. HEALTH.—[ADVT.]

Skating along the reaches of a frozen river, with the cold, sharp wind whizzing by the ears, has an undoubted charm, and a man thus employed certainly feels an added power in his feet, but the time for the practice is in any case brief, and the opportunity is becoming really rare, while the exercise involved is violent in the extreme, and the *locale* is very limited and confined within narrow bounds. Skating is, however, very closely allied to tricycling in its essential attributes.

All sports, of course, possess great advantages in this too sedentary age, as they induce the exercise which is needful to keep us in health, but, whether regarded as a sport, as a means of exercise, or as a mere amusement (not to mention its adaptability to business purposes) I am inclined to give tricycling the palm. By the aid of the wings thus added to our feet we can roam all through Great Britain, and thread the highways and by-ways of any civilised country, gaining health and fresh air at every revolution of the wheels, and securing constant change of scene. The sensation attending the comparatively rapid and easy progress, entirely by one's own powers, is exhilarating in the extreme, and the exercise derived from the needful exertions is beneficial to a very marked degree, as it invigorates without absolutely wearying, when carried on in moderation. This especially applies to stout persons, whose weight is burthensome to the legs when walking, as on the tricycle there is none of this weight to carry upon the legs, seeing that it is balanced on the saddle where it is supported by the wheels. The exertion is fairly equable, and is not spasmodic at all, as even when more force becomes needful to ride up a hill, there is nothing spasmodic involved. The power exerted is purely muscular, and consists of pushing with the feet, and pulling with the arms, and it follows as a matter of course that between these two forces the whole body comes in for its share of the work. So long as motion is maintained, the exercising process is continued; and should it become irksome, the pace can be slackened, or the rider can come to a dead stop. With a properly constructed machine the sensation is one of gliding through space, and the exhilaration attendant upon the practice largely enhances its value as a healthy means of exercise. There is nothing monotonous about tricycling, the scene is constantly changing, and the rider feels that he has indeed "winged feet" and a specially added power.

PUBLIC PARKS AND OPEN SPACES.

By George Howell, F.S.S.

FIFTH PAPER.

Londoners are specially favoured in having the right of user to the Royal Parks before named. The aggregate total extent of these parks and gardens is about 3,829 acres; and they are all easy of access from all parts of the metropolis. The most exquisite sylvan scenery abounds in some of them, and in many shrubs, plants, and flowers are cultivated in the highest state of perfection. In others, magnificent trees throw their huge branches over long avenues and walks, which, during the season, are covered with foliage and bloom. They are at once breathing and recreation grounds, health and pleasure resorts, for all classes.

But there are other "Royal Parks," created under special Acts of Parliament, and also a number of public parks and open spaces, secured to the people of London by legislation. The former consist of:—(1) Victoria Park, the first Act for which was passed in 1841. This statute empowered her Majesty's Commissioners of Woods and Forests to purchase about 290 acres of land, and to lay it out as a public park, at a cost of £72,000, the amount to be raised by the sale of York House, under the powers conferred by the same Act. This park was completed and opened in 1845. Altogether, no fewer than five Acts of Parliament were passed for the making, laying out, completion, and payment of costs in connection with this park, namely:—4 and 5 Vict., c. 27 (1841); 5 and 6 Vict., c. 20 (1842); 14 and 15 Vict., c. 42 (1851); 14 and 15 Vict., c. 46 (1851); and the 35 and 36 Vict., c. 53 (1872). In the year last mentioned, the Metropolitan Board of Works, in response to an appeal from the Commons and Parks Preservation Society, energetically supported by local bodies in the neighbourhood, secured a belt of land adjoining that enclosed as a park, consisting of 24 acres, at a cost of £24,500, which strip of land was added to the public park. Victoria Park is situate in the East of London, and is beautifully laid out. Cricket, boating, and other healthful exercises are permitted therein.

2. In the year 1846 the same commissioners were empowered to purchase land at Battersea for a public park, under the 9 & 10 Vict., c. 38. Other Acts for enlarging the area and providing for the cost were passed as follows:—14 & 15 Vict., c. 42, and 14 & 15 Vict., c. 77, both in 1851. Besides which seven other Acts were passed having reference to Battersea Bridge, and the Embankment along the river side of the park, and to Chelsea Bridge and its approaches across the river to the park. This park, and the handsome suspension-bridge across the Thames to it from the Chelsea side, were opened by Prince Albert in April, 1858. The park consists of 250 acres; a portion of it is devoted to plants, shrubs, and flowers, all of which are cultivated to a high state of perfection, and the remainder is open for promenades, cricket, football, and other out-door games.

3. Kennington Common was directed to be laid out as a public park or pleasure ground in 1852, the odour of the Chartist gathering, which took place there in 1848, still unpleasantly attaching to it. The Act for enclosing it was the 15 & 16 Vict., c. 29, another being passed in 1874—the 37 & 38 Vict., c. 84—with respect to it. The area of this park is only about twenty acres, but it is admirably laid out and kept. The park-keepers' houses or lodge were built as specimen model dwelling-houses for working people, by the late Prince Consort. These are still called "Royal Parks," but they are transferred from the Commissioners of Woods and Forests by the 14 & 15 Vict., c. 42, to the Commissioners of Works and Public Buildings. Public meetings are permitted in Battersea and Victoria Parks, under the same regulations as those in force with respect to Hyde Park and Regent's Park, but none are allowed in Kennington Park. A narrow strip of land on the north side of the park was reserved for building purposes; but it is still untouched, and it is never likely to be covered with houses now.

Parks, Gardens, Commons, and Open Spaces under the management and control of the Metropolitan Board of

Disease Germs in Water and the Battle of the Filters. See Nos. 52 and 56 of Health.—Maignen's Patent "Filtre Rapide" is guaranteed to remove all the germs of disease from water, organic matter in solution, and metallic impurities such as lead and iron, and also noxious gases. It really aërates the water and renders it pleasant to drink. It can be most easily cleansed by the users themselves. The old filtering medium is thrown away and replaced by a new charge at a trifling cost. Filters suitable for the cottage and mansion, for the kitchen and dining-room, also to purify the whole supply of the house by attachment to the service pipes, and also for waterworks and large industries. Full particulars and prices are found in the pamphlet, "Water, Preventable Disease, and Filtration."—Sent free on application to P. A. Maignen, 22 and 23, Great Tower-street, London, E.C., or through any chemist or ironmonger.—[Advt.]

Works.—The movement in favour of public parks and open spaces in the metropolis necessitated local action, in addition to what was done under the general statutory powers before mentioned; and the only body that could undertake the work, in the present state of municipal government in London, was the Metropolitan Board of Works. There are two distinct series of Acts conferring authority upon the Board for dealing with this subject, and giving it jurisdiction over the open spaces committed to its care.

1. The Parks and Gardens Acts.—"The Gardens in Towns Protection Act," 26 Vict., c. 13, was passed in 1863. Under this Act it was provided that any garden or ornamental ground in the metropolis (except in the city of London) set apart for the use of the inhabitants, and not kept in proper order, may be dealt with by the Board and vested in a committee of the rated inhabitants, to be kept as a garden or ornamental ground. In the event of the inhabitants not accepting the charge, the Board is authorised to place the garden under the vestry or local district board. Further general powers are conferred by "The Metropolitan Open Spaces Act, 1877," 40 & 41 Vict., c. 35, which authorises the Board to acquire and hold open spaces, such as gardens in squares, for the benefit of the public; and by "The Metropolitan Open Spaces Act, 1881," 44 & 45 Vict., c. 34, which extends the operation of the last-mentioned Act, and includes disused burial-grounds among the open spaces which may be transferred to the Board, or to any vestry or district board, for the benefit of the public. Under these general Acts something has been done in various parts of London for the preservation of open spaces of one kind and another.

In addition to these, several parks and open spaces have been secured under special Acts. Finsbury Park was created under an Act passed in 1857, 20 & 21 Victoria, c. 150, which empowered the Board to provide a public park in the parishes of Islington and Hornsey, and to take land compulsorily for that purpose. The Act remained a dead letter until 1866, when 115 acres of land were secured at £472 per acre, situate at what was then called Hornsey Wood. Preparations for draining and laying it out were at once commenced, and after three years' labour upon it the Park was opened on August 7, 1869.

The Southwark Park Act, 27 Victoria, c. 3, empowering the Board to form a park in the parish of Rotherhithe, and to take land compulsorily for that purpose, was passed in 1864. After some delay, sixty-three acres were secured at £911 per acre, and the park was laid out and opened on June 19, 1869. The total cost of those two parks, all inclusive, was about £60,000. The latter is situate in a densely populated district of very poor people, and was much needed.

The Victoria Park Act 1872, 35 and 36 Vict., c. 53, confirmed an agreement made and entered into by the Board with the Commissioners of Woods, Forests, &c., to purchase, for the sum of £20,450, certain land, 24 acres in extent, adjoining Victoria Park, which land had been reserved for building purposes, such land to be added to and to form part of the park under the management of the Commissioners of her Majesty's Works and Public Buildings. It is now part and parcel of Victoria Park.

Leicester-square Act, 1874, 37 Vict., c. 10, authorised the Board to acquire possession of the enclosure in Leicester-square, and to maintain it as a place of public recreation. The cost of transforming that hideous spot, at one time the filthiest in all London, into a place of pleasurable resort, was borne by "Baron Grant" in the days of his prosperity.

(*To be continued.*)

Erratum.—The acreage of Bushy Park should be 260, *not sixty*, as stated in last paper.

Our Papers on Popular Science.

NINTH PAPER.

"Blessings on Science! When the Earth seemed old,
When Faith grew doting, and our reason cold,
'Twas she discovered that the world was young,
And taught a language to its lisping tongue."
—*Charles Mackay.*

HEAT.—IV.

By EDWARD H. RICHES, LL.D., F.R.A.S.

HAVING proceeded thus far in our considerations of the theory of *heat*, it will not be difficult to perceive how pardonable it was on the part of those in the earlier days of scientific research, to imagine that heat was a highly elastic and imponderable fluid which clothed, so to speak, the material particles of solids, fluids and gases,—the latter attracting the former, and sometimes emitting, or throwing out, their caloric, which was also imagined to be repulsive of its own particles. It is now seen that the *material* theory of heat cannot be held as valid, and when we consider heat as being communicated by radiation, we at once see its analogy to light, and we perceive that the undulations of the same ethereal medium may propagate heat as well as light. It may not be perceived, however, that the ether which gives us light is interpenetrable by another kind of ether that gives us heat. If the invisible heat rays in the solar spectrum be examined we are at once greatly helped in arriving at definite and correct views of the phenomena. Just like light, heat can travel through space; this we are fully aware of when sitting round the fireside, or on some bleak night perchance, when crossing the sea, we experience the *invisible heat* which is constantly radiating from the funnel of the steamer—the heat-waves which comfort us, and are impinging upon us, just as the sea-waves below strike against the sides of the boat. In considering the three ways in which heat may be communicated—namely, by direct contact, by conduction and convection, and by radiation, it may be well to remark briefly upon each of these causes separately. In the case of heat being communicated by *contact*, for instance, when a cold body touches a hot one, the heat from the latter passes directly into the former, just as when we suddenly plunge our hands into hot water, or when cold metal is put into the fire. When, again, heat travels from particle to particle of a body, as for example, from the *end* of the poker which is placed through the bars within a fire to the handle, it is said to be communicated by *conduction*. And in the case of heat being communicated by *radiation*, the heat leaps, so to speak, from the hot body to the cold one through an interval of space which is measurable, as, for instance, when a body is rendered warm in consequence of its having been placed at a certain distance before the fire. And we may note that a heated body cools itself by giving off heat from its surface, either by contact or radiation, or by both conjointly; also by the heat within it passing from particle to particle by conduction through its substances to the surface. And so a cold body becomes heated by heat passing into its surface by contact, or radiation, or by both conjointly; also by the heat within it passing

A VALUABLE INVENTION.—It is gratifying to learn that MR. R. ADAMS, of 17, Blackman-street, London, S.E., whose fanlight-openers and silent door-springs are being extensively used, has received large orders for his PATENT REVERSIBLE WINDOW. The sashes, although they slide up and down in the usual way, can be instantly turned inside out, enabling anyone to clean each side of the glass with ease, while standing in the room.—[ADVT.]

from particle to particle through its interior portions by conduction. We may say, then, that the communication of heat from one body to another by contact is influenced by certain conditions, as the conducting power of the substances and the degree of contiguity, and the more rapid will be the transfer in proportion to the perfection of these conditions. Perhaps, strictly speaking, in the case of direct contact being the cause of the transfer of heat, it is an example of *radiation*, the surfaces being separated by an insensible distance. Heat does not pass through all bodies with the same velocity, for while on the one hand we find that heat is transmitted but slowly through certain bodies, on the other there are some substances which are capable of but little opposition or impediment to its passage. In the former case we have an example of non-conductors of heat, and in the latter of conductors; and these are the two classes into which all bodies are divided in respect to their power of conduction of heat. All metals are good conductors of heat, *silver* being the best; and, were it possible to have our kettles which are used for heating water made of silver, we should find that hot water could always be obtained by their means in a much less space of time than when the kettle is made of tin or other metal. The order of metals, as regards their conducting power, has been arranged as follows:—Silver, gold, tin, copper, platinum, steel, iron, and lead. And as metals are such good conductors of heat, and as it is not agreeable to touch metal above 120 deg. Fah. with the hand, it has been found well, in the case of handles to tea-pots, for example, to separate them from the hot body of the pot by a thin rim of wood, through which a thin but sufficiently strong connecting-rod attaches them to the pot. It may have been noticed by some of the lady readers of HEALTH that iron handles will generally be found attached to tin teapots, because iron has less conducting power than the tin of which the teapot is made; and, further, to increase its non-conducting power this iron handle is fixed by lead, which is a worse conductor still. Again, as *wood* is a slow conductor of heat, wooden spoons and forks should be used for handling ice; and, just as we remarked above, in the case of the heat from the hot end of a metal poker, quickly and sensibly reaches the other end, so, because a piece of wood which is lighted at one end may be held in the hand with impunity, is a proof of the slow conducting power of wood. And it is here that we may reflect on the fact that because fur, wool, cotton, &c., are very imperfect conductors of heat, so we find, as in the case of all animal and vegetable substances of a loose texture, how efficacious they are as coverings for the human body as preservers of warmth.

We may rightly assert from the fact that if a cold body come into contact with a hot body, the temperature of the former will be raised and the latter lowered, that there are analogous properties common to heat and water; for this tendency of heat to diffuse itself equally through all bodies until the temperature of each body it affects is the *same*, is similar to the property of water finding its own level. And it must not be imagined that because we may believe that some articles in a furnished room appear warmer than others, that they are *really* of a different temperature; for heat has a tendency, as was before remarked, to diffuse itself equally, but by reason of the difference in the power to conduct heat in different substances, bodies may appear to possess different degrees of heat although of the same actual temperature. To some, at a glance, this may appear to be incredible, but its truth may be at once seen if we put our hands, say, on our coat, a piece of wood, and a piece of marble, supposing that all have been for some time in the same room, we shall find that, apparently, the coat is the warmest and the marble the coldest; and now, if to each we apply a thermometer, there will be found to be no real difference of temperature; and we must infer from this that, as was before observed, some substances conduct heat readily, while others do so but slowly. And the reason why the marble would seem to be the coldest of the three substances, is that marble being a good conductor of heat it receives the heat from the hand very readily, in fact, so readily that we at once perceive that heat has been lost from the hand; and again, the woollen texture of our coat being a bad conductor of heat, the heat which it takes from the hand is conducted so slowly that we do not perceive it. The difference, then, in the warmth of various substances we use for articles of clothing, depends upon the varying powers of conducting heat possessed by each substance. We all know the value of woollen garments — how comforting to the chilled surface of the skin after a cold bath!—for these garments part slowly with the heat which they take from our body, thus failing to convey the warmth of the body to the air. And we know that linen sheets on a bed on a frosty night are frequently painfully cool to the touch, and for the reason that the linen parts with its heat readily, and just as readily receives again heat from our body. In our next paper we shall have some further remarks to make upon conduction of heat, and then pass on, as promised in the earlier part of this paper, to some considerations as to the other ways by which heat is communicated.

A DAY IN THE COUNTRY.—The managers of the East London Mission, 263, Cable-street, St. George's, E., have issued an appeal for funds to enable them to take some 600 of the very poorest children from the courts and alleys of East London for a day in Epping Forest. Such a design deserves every support, and we sincerely trust that the appeal will be answered in a way which is satisfactory to those who make it.

A HALF-STARVED PIG.—Mr. Claypole writes to *Science*:—"The following fact, though not unexampled, yet seems to me worth record. In the first week of September, 1883, on the farm of Mr. William Burr, in Medina county, Ohio, the steam-thresher was at work, and, as usual, a large stack of straw was gradually accumulated. Two or three days afterwards Mr. Burr missed a fat sow weighing about 300 lb. After a long search and much inquiry, he came to the conclusion that she was lost in some unknown manner, and thought no more of her. About the 20th of March, 1884, in pulling down the remains of the straw-stack, the sow was found, thin as a deal board, but living. Her weight was 160 lb. She had been imprisoned for 205 days, without water, and with only the straw for food. Treated with judgment, and fed slightly at first, she did well, and is now growing fat again."

MEDICAL AND SANITARY EXHIBITION, 1881.—AWARD OF MERIT.—DIABETES. VAN ABBOTT'S GLUTEN BREAD, and all other suitable Foods for Diabetic Patients. Dietary Tables and Price Lists post-free on application. VAN ABBOTT, 5, Princes-street, Cavendish-square, W.—DELICATE CHILDREN AND ADULTS SUFFERING FROM NERVOUS DEPRESSION. VAN ABBOTT'S HYPOPHOSPHITE OF LIME BISCUITS, for Delicate Children, especially those suffering from Deficiency of Bone, Weak Joints, or Debility, and Adults suffering from Nervous Depression. Each Biscuit contains five grains of the Hypophosphite of Lime. "Quite free from disagreeable taste, and taken willingly by Children, and certainly provide an excellent means of administering this valuable compound. Our analysis proves the accuracy of the printed descriptions on the labels of the boxes. The Biscuits were suggested by Mr. W. Adams, of the Orthopædic and Great Northern Hospitals." — *Lancet*, Nov. 4 1876.—VAN ABBOTT, 5, Princes-street, Cavendish-square.—[ADVT.]

Personal Health

"Be timely wise;
With health all taste of pleasure flies."—*Gay.*

ARTISTIC DRESS AND ITS HEALTH ASPECT.

BY OUR LADY-COMMISSIONER.

FROM the earliest times the object of dress has been two-fold —first to cover, second to adorn. Amongst savage nations adornment has ever been considered the most important function, but we sanitarians are popularly regarded as having no sense at all of its importance. In this, however, we are misjudged. Far from having no idea of the beautiful in its relation to dress, we have what time will prove to be the highest and purest of all ideals. Beauty for us is the perfect adaptation of the means to the end. This definition can be applied to anything and everything throughout nature; but in its application to dress it implies a great deal. The end of clothes, so far as we are concerned, is in warm weather to cover people without over-heating them, and in cold weather to keep them warm. Hence, as clothes to be beautiful must be perfectly adapted to this end, we must have no tight-fitting garments which can but serve to impede the vital processes, no long and heavy trains which only weary the wearer, nor dyes which contain poisonous substances. Beyond these limitations we may rejoice to the full in soft, rich materials, flowing and well-arranged draperies, and delicate and varied colours.

With a view to discovering what art could do in the way of providing us with beautiful and healthy dresses, I recently paid a visit to the establishment of Messrs. Liberty & Co., Regent-street, London, W., who, I was told, were the only people who make a specialty of providing artistic stuffs. I was particularly struck with the vast number of lovely and delicate tints, not one of which could be called by any definite name, and which, I believe, cannot be seen anywhere else in England, and with the softness of the materials, which seem to lend themselves to every kind of elegant drapery. For summer wear, nothing could be more light and deliciously cool than a morning dress of their Arabian cotton—the colour can be suited to the complexion of the wearer, and the dress should be arranged with a skirt hanging in loose folds, and what is called a baby bodice with a band round the waist. Or a similar dress might be made for evening wear from Nagpore silk, or the more costly soft satin, or Rumchunder silk. Or I might suggest an overdress of white Indian Corah silk with a skirt of the Mysore silk stamped with gold. Beautiful evening dresses for young girls may be made of the soft Dacca muslin or of Indian gauze. For winter wear, I was shown every variety of colour in Umritzur cashmere, which is both warm and light. In fact, I saw colours and stuffs to suit every style of wearer and every kind of wear. But the great difficulty with regard to these stuffs is that in the hands of the modern dressmaker, imbued as she is with false notions of beauty and apparently of the shape of "the human form divine," they are tolerably certain to turn out a dead failure.

It is this fact which gives one such a high opinion of their æsthetic and health value, that they will not lend themselves to the ordinary fashionable, and, from the sanitarian's point of view, hideous form of dress. With a robe of so soft a material, a train of any length would become a mere wisp, and a squeezed-in waist would be simply ridiculous, even if it were not, as far as the material itself is concerned, an impossibility; for no ingenuity on the part of the dressmaker could make it fit tight, as the stuffs have a knack of stretching.

In view of the ill-usage their stuffs have received at the hands of the typical dressmaker, Messrs. Liberty & Co., with the assistance of Mr. E. W. Godwin, F.S.A., have founded what they call Studios for Artistic and Historic Costume, the object of which is, in their own words, "to make an important, continued, and systematic attempt to establish an educational school of personal adornment, where shall be secured such forms, draperies, colours, and ornament as harmonise most perfectly with the natural characteristics of the wearer." Of the historical dresses properly so called, I need not now speak, but when visiting the "Studios" I saw a great number of designs, and several made-up models of dresses thoroughly beautiful in the true sense of the word. Among these are no small waists; and the dresses, as the young person who showed them to me remarked, may very well be worn without stays. One pretty costume is what they call the "Marguerite dress," something like that in which the heroine of Goethe's "Faust" is generally represented in the church scene. The Greek draperies are most graceful, and might be worn by any lady in the evening. I noticed as a model, which many mothers might copy with advantage, a child's smock dress. It was made of pale green Nagpore silk, gathered in at the neck like a carter's smock, and pulled up to fall over a rope girdle at the waist. It is not lined, and washes perfectly well. The way in which it is gathered at the neck permits its stretching across the chest as the child grows. The hem is made wide, and tucks put in the sleeves as a still further provision for that event.

In these times of small waists and large crinolettes, of gaudy colours and tasteless constructions, Messrs. Liberty are doing valuable work in trying to lead the public to an appreciation of the artistic in dress. The object of art is to obtain beauty, and beauty must go hand-in-hand with good. There is no beauty in deformity, yet what but deformity is that which the fashionable lady of the period would fain induce an incredulous public to believe in her natural figure? Our eyes have become accustomed to deformity in dress; and, therefore, unless we think seriously about the matter, we grow into contentment with the unnatural. If we look over fashion-plates of fifty or a hundred years ago, we laugh at the quaint figures and wonder how people could ever have liked to make such frights of themselves, but if we really glance over a fashion-book of the present, it must appear every bit as ridiculous. The ancient Greeks were far, very far, in advance of us in their mode of dress; and from almost all times and countries costumes may be picked out which are perfectly suited to the purpose for which they are intended. We who from the heights of the nineteenth century are too apt rather to look down on the bygone ages should try to learn whatever good lessons, and they are many, the past can teach us. Dress is not a matter of slight, but of vital importance, for it exercises a powerful, if often unrecognised, influence on the health of the community, and it should be studied, therefore, as an art, not only by all caterers for the public, in imitation of Messrs. Liberty, but also by the people themselves.

PURE WATER is such a vital necessity that, without it, illness is certain. None are more prone to the ill effects when impure than the young. To ensure a pure supply send a post-card to the LONDON AND GENERAL WATER PURIFYING COMPANY, LIMITED, 157, Strand, London, W C., who will return particulars post free.—[ADVT.]

INTERNATIONAL HEALTH EXHIBITION. — EASTERN GALLERY. — THE PICTURE GALLERY REFLECTOR.—Chappuis' Factory, 69, Fleet-street.—[ADVT.]

Healthy Houses

"A happy home must be a healthy home."—*Anon.*

LIGHT AND HEALTH.

By George G. André.

FIRST PAPER.

The science of hygiene has, during the last half century, made very notable progress. Taken up of late by men of wide practical knowledge, as well as of sound scientific training, it has advanced in the last two decades with gratifying rapidity, and, favoured by the spread of general education, it is yearly making fresh inroads on the hitherto unassailed strongholds of sanitary ignorance. The laws of health, discovered and formulated by scientists, have been made known to the masses of the people through the medium of cheap and popular literature, either having that end as its sole aim, or comprising it in an object of wider scope. There is, indeed, no dearth of information, easily accessible to all, concerning many of the causes which operate on our physical well-being; and this statement is especially true of those causes which affect the health of communities rather than of individuals. The conditions of life in cities have been studied with careful attention, and the outcome of these investigations is to be seen in the works of the sanitary engineer.

But in all this there has been a singular overlooking of one vitally important, ever-acting cause—namely, Light. This oversight is the more remarkable as the effects of light are so distinctly visible, and their relation to their originating cause is so clearly apparent. It is true that the necessity for light is often urged; and that it is indispensable to health is universally admitted. But its influence on health is spoken of only in a general way, and it is nowhere dealt with according to any organised system. Sewerage has a copious literature of its own. Ventilation has been made the subject of numerous treatises. The evils of over-crowding have been vividly set forth in the papers of learned societies and in the columns of the public journals. And means have been provided for efficiently dealing with all these matters in practice. But the question of the influence of light upon animal life has remained comparatively neglected. It has not been treated of in anything more than an incidental and desultory way by writers on hygienic science. It has not even been made the subject of serious discussion at the meetings of sanitary reformers. The drainage engineer is at hand to provide for the safe removal of noxious refuse. The expert in ventilating and warming seeks occasion to apply his knowledge of the value of pure air and a genial temperature. The analytical chemist is set to watch for dangerous impurities in the water we drink and in the food we eat. The medical lecturer urges his hearers to protect themselves against climatal influences by sufficiently and suitably clothing the body; and Governmental authority interposes to prevent the poor from huddling together to their own and others' hurt.

But the evils resulting from a privation of light are allowed to go on unheeded, or, if observed, unremedied. No daylight engineer has yet made it his special occupation to let the rays of the sun in to brighten the gloom of our unskilfully-designed dwellings; and Boards of Health are blind to the state of semi-darkness in which tens of thousands are condemned by pernicious circumstances to pass the greater part of their lives. Happily the matter is now receiving more attention at the hands of architects than it did formerly; and there is ground for hope that this fact is a symptom of a growing interest in it on the part, at least, of those who direct opinions on questions of public health. These remarks are, however, by the way. Our present aim mainly is to point out some of the ill-effects on health of the absence of *direct* light, and to show how these evils are aggravated and multiplied by certain habits and customs, and by some of the vagaries of fashion. These being matters of serious import in which all are directly concerned, they need only to be clearly set forth to excite in the most careless at least a passing attention.

An abundance of direct sunlight is necessary to a perfectly healthy organisation. It would not be an easy task to define exactly what constitutes an abundance; but for our climate it may be assumed to be nearly all that nature provides. Animals, like plants, are constituted to live in the open air, where they are continually bathed in light during that portion of the day when the sun is above the horizon. And it is a matter of observation that the vigour of life, in the one as in the other, will, other things being equal, be proportionate to the degree in which this condition of existence is fulfilled. That the proposition above enunciated is equally true of human beings and of plants admits of no reasonable doubt when the evidence, everywhere before our eyes, is fairly taken into account. The similarity of the nature and conditions of life in the vegetable and in the animal worlds is clearly apparent, and it is generally acknowledged.

What, then, are the effects of a privation of light on the health of plants? The first visible consequence is the well-known *etiolation*, or blanching, which is a loss of colour in the green parts. This loss of colour is indicative of organic decay, or at least of that organic change which precedes decay. It is the pallor of sickness; the symptom of approaching death. A minute examination of the substance of the plant will reveal some important changes in its constitution and functions. The grains of chlorophyll, to which its colour was due, have shrunk away to the deeper recesses of the cells of the vascular tissue, and have become inert. Water is no longer thrown off at the surfaces of the leaves, but it accumulates in excess in the vessels or cells. Carbonic acid is not absorbed from the atmosphere, and consequently carbon is no longer fixed to supply the waste of tissue. Hence ensue undue or uncompensated waste and watery repletion, a state of things that sooner or later is followed by death. That these phenomena are brought about solely by the exclusion of light, and are not in any degree due to a want of heat, has been conclusively proved by experiments. If, instead of excluding the light altogether, we deprive the plant of only direct rays; that is, if we allow only a diffused reflected light to fall upon it, the very same consequences will ensue as in the former case. There will be a difference in degree, but only in degree. In this case, the plant will be more or less etiolated or pallid, according as the light to which it is exposed is less or more intense; and, according to the same circumstance, it will exhibit a greater or less want of vitality. These facts are generally known; for who has not observed the effects of shade upon

Sanitary Inspections.—Fee for Survey and Report, in London, 2 Guineas. Estimate given and Improvement Works carried out when required.—The Sanitary Engineering Co., 115, Victoria-street, Westminster, S.W.—[Advt.]

Scott's Midlothian Oat-Flour.—There is no preparation which can be assimilated with greater facility than such a flour as this. Those who suffer from indigestion might substitute for their ordinary breakfast materials this flour, prepared according to the recipe given by Messrs. Scott and printed on the tins.—Ed. Health.—[Advt.]

The "Boncontour" Stay-Belt and other Orthopædic Apparatus, made by K. R. Schramm, Orthopædic Mechanician, 64, Belmont-street, Chalk Farm-road, London, N.W.—[Advt.]

plant life? The potato grown in a cellar has leaves of pale and unhealthy character; and the gardener "blanches" certain plants to make them soft and fit for table use by growing them in the dark. That there are some plants which thrive better in the shade than in the direct sunlight is not to be adduced as evidence to the contrary. Nature abhors barrenness, and such plants are constituted conformably to the conditions under which they have been decreed to exist. Worms and moles live and flourish where no sunlight can penetrate.

Analogy would lead us to look for like effects upon animal life. And, as a matter of fact, we find that light is necessary to existence here as well as in the vegetable creation. Infusoria do not develop in darkness, nor will the spawn of frogs nor the eggs of flies hatch under this condition; while tadpoles' and flies' larvæ speedily perish when light is excluded from them. In the higher grades of life, the same influence continues to operate in the same manner and with the same force. Young horses consigned to the darkness of the coal-mine soon lose their spirit and languish into premature old age.

If, now, we turn to the effects of privation of light on the health of human beings, we shall find them to be of the same nature. Like the plant, the man deprived of light becomes etiolated. The first visible sign of an insufficiency of light is pallor; the man is blanched. At the beginning, the pallor is simply lack of colour; but later, it assumes a yellowish and earthy hue. This blanching is equally apparent in the negro and in the white-skin; it may be observed at the equator as well as at the poles. It is caused by a particular state of the skin-circulation, and is altogether different in origin from what is called "complexion." The blanching in this case, as in that of the plant—a symptom of decay, is accompanied by a diminished energy of breathing, which occasions a decrease of organic combustion and a slowing of the circulation of the blood; and the latter becomes changed in constitution, being impoverished in globules, albumin, and fibrin. The consequences of this altered state are a tendency to hœmorrhage and dropsy, a want of vital energy, and a predisposition to tubercules and scrofulous ailments.

It is, unfortunately, easy to find examples of even these extreme effects of a privation of light upon the health of human beings. Prisoners condemned to long periods of solitary confinement; stevedores, whose occupation is to stow away the cargo in the dark holds of ships; and the toilers in mines—these all painfully illustrate in their persons what deprivation of light means. The miners are a numerous class, and they are the greatest sufferers from this cause. The traveller through the mining districts cannot fail to be struck by the pale faces of the men he meets. Through the grime, the sallow earthy hue, indicative of etiolation, is distressingly visible, and the imagination can but too readily supply whatever information the health records of the locality fail to give. Perhaps the slate-quarrying district of Festiniog, in North Wales, gives by contrast the most remarkable examples of the pernicious effects of sojourning in places were daylight never enters. Situate high up in this mountainous country, it is one of the healthiest spots in the world. Its pure, bracing air imparts vigour to the muscular frame, and paints the cheeks with the ruddiest of tints. But the men are all employed in the dark quarries, where they become blanched like the miners of other localities. On Sundays, the numerous places of religious worship are filled by these quarrymen with their families; and it is an impressive sight to look upon these congregations, in which the blanched faces of the men contrast so strikingly and so painfully with the fresh, ruddy, glowing cheeks of their wives and children sitting beside them.

Recreation and Health

"Health is the vital principle of bliss,
And Exercise of health."—*Thomson.*

HEALTH AND HOLIDAYS.

FOREIGN HEALTH RESORTS.—I.

BY A PHYSICIAN.

IT may, perhaps, be as well, before entering on our subject proper, to give the reader some idea of the method we intend to pursue in treating of these foreign health resorts, more especially in regard to the order in which we shall discuss them. On consideration, we have decided to describe them alphabetically, in much the same way as we did the "Home Health Resorts" last year. At first we thought of arranging them in groups, according to their locality, climate, and other distinguishing features, but, when we came to reflect over this plan more seriously, we soon saw that it would lead us into inevitable confusion and doubt, since the characteristics of some resorts would be so varied as to make it a matter of the greatest difficulty to know what group to refer them to, if to any at all; indeed, we might almost say that under this arrangement, of making groups, there would be no end. So, eventually, we have decided to fall back upon our old plan. It may have its faults, but it also has its advantages, and, amongst the chief of these, is undoubtedly the benefit of easy reference.

In writing of these health resorts, we may say that we shall endeavour throughout to keep two objects very clearly in view—in the first place, to give all the information from a health point of view that we can, and, secondly, to supply as accurate an impression as possible of the social and natural characteristics of the different localities mentioned. Obviously, from the extent of our theme, we shall not be able to allude to *all* the various health resorts abroad—for indeed their name is legion—but such as we shall omit are, for the most part, either small, comparatively unimportant places, but little known, or such as, from their want of accommodation or other defects, offer but slight inducement to the invalid or holiday-maker to visit them. With these few remarks, then, we embark on our subject.

Aix-les-Bains.—A highly fashionable French spa, the chief thermal resort of Savoy; a pretty little town, numbering some 4,000 inhabitants, which from its elevated position along the slope of Mont Revel, east of the valley of Aix, at a height of 800 ft. above the level of the sea, enjoys a particularly healthy climate, and consequent immunity from disease. Goitre and cretinism, for example, which are so prevalent in the other Alpine valleys, are practically unknown here. The waters are principally used externally, in the form of baths, douches, and inhalations; but they are not particularly powerful, and for drinking purposes, especially where it is desirable that the patient's system should be fully subjected to the influence of sulphur, the springs of Challes and Marlioz, towns which lie in close proximity to Aix-les-Bains, are usually, though not always, preferred. The chief complaints for which the waters of Aix-les-Bains are efficacious are chronic rheumatism, obstinate diseases of the skin, gout, sciatica, and affections of the nervous system. They have also been found beneficial in many forms of joint disease, more particularly in the stiffness which results from injury. It is, however, not to the actual intrinsic value of its waters, considered medicinally, that Aix-les-Bains owes its high reputation so much as to its picturesque position and the estimable establishment it possesses for administering those waters; the latter is,

without doubt, one of the most perfect in Europe. The season begins in May and ends with the close of September. Amusements are plentiful in the town, and the surrounding neighbourhood is interesting. Hotels: Grand Hotel de l'Europe, Grand Hotel d'Aix, Hotel Venat, Grand Hotel du Parc, &c. Aix-les-Bains is 361 miles from Paris, the railway journey occupying thirteen hours. Fares from London, *viâ* Paris, Macon, and Ambérieu (about), *£5. 18s., £4. 9s.

Aix-la-Chapelle.—One of the oldest, and at the same time the principal, of the German sulphur spas. Is situated almost on the border-line between Germany and Belgium, about 43 miles south-west of Cologne, and at a height of 450 ft. above sea level. The most prominent chemical constituents of the waters are chloride, sulphate, and bicarbonate of sodium, sulphate of potassium, and carbonate of calcium; and the diseases for which they are specially applicable are chronic gout, rheumatism, disorders of the kidney and spleen, and catarrhal affections of the nose, pharynx, and throat. In the latter form of complaint, as Dr. Schuster, the principal medical authority of the town, points out, they have been of remarkable value; also in aid of mercurial treatment. The arrangements made for the comfort and convenience of visitors are in every way excellent, and the neighbourhood, though perhaps not, strictly speaking, beautiful, yet affords opportunities for many pleasant drives and interesting excursions. The season extends from May to October. Hotels: Hotel Du Grand Monarque, Hotel de l'Empereur, Hotel du Dragon d'Or, Hoyer's Union Hotel, Hotel Nuellens, &c. Fares from London *viâ* Calais (or Ostend), Brussels, and Verviers (about), £2. 18s. 9d., £2. 2s. 3d. There is a cheaper route, however, *viâ* Harwich and Antwerp, the fares for which are £1. 17s. and £1. 4s.

Ajaccio.—A small town on the west coast of Corsica, of which it is the capital. From its sheltered position, it forms a very suitable winter-resort for invalids desiring a mild, equable climate; and it possesses the additional recommendation for some people of novelty. Only patients, however, requiring a *moist* atmosphere will benefit by a stay there; to others it may be injurious. The place itself is exceedingly lovely. Hotels: Continental, De France, Du Nord, Belle Vue, &c. Fares from London (first to Marseilles, and thence by steamer), £8. 7s. 6d., £6. 3s. 6d.

Algiers.—Situated on the southern shore of the Mediterranean, facing north. The town consists of two distinct portions—the old Moorish part, narrow, disorderly, and dirty, but, like all Oriental localities, extremely picturesque, and the more modern or French part, with symmetrical streets, boulevards, quays, cafés, and infinite life and gaiety. In the background rises the Sahel Hill, along the slope of which a considerable portion of the town, embracing the suburbs known as Mustapha Supérieur and Inférieur, is built, and these form the healthiest portion of Algiers, and in the winter season the most highly frequented by visitors. Of the climate, in consequence of the conflicting statements that have been made, it is not very easy to speak, but, making as impartial a verdict as is possible under the circumstances, we may put down the temperature of Algiers as somewhat higher than on the Riviera (in which opinion we have Dr. Marcet's valuable support), and on the average, for the six winter months which constitute the season—that is to say, from April to November inclusively—about 56·6° Fahr. In regard to the rainfall, it would appear pretty evenly distributed throughout the six months, but most authorities are agreed in saying that March and April are, as a rule, the finest months. The atmosphere is much moister than on the Riviera, and more particularly is it so after nightfall; but, on the other hand, there is not that sudden fall in temperature after sunset which is so characteristic of Cannes, and, in a minor degree, likewise of Nice. The principal form of disease for which the climate is likely to prove serviceable is consumption in an early stage; and it has also been found beneficial in many maladies of a chronic nature, such as bronchitis. The hotel accommodation is, for the most part, inferior, and not to be compared with that afforded by the fashionable European health resorts. There are several ways of going to Algiers, but the cheapest is *viâ* Paris and Marseilles, thence by steamer, the cost of which varies from £8 to £10. 10s., according to the class travelled. Steamers also sail fortnightly from London to Algiers; fares: £12 and £8.

Alassio.—This is a health-resort that is rapidly becoming better known, and it promises before long, as a winter residence, to be highly popular. It is situated about twenty-eight miles from San Remo, on the Italian Riviera. By the Italians it is principally frequented as a summer bathing-place, for which its smooth sandy beach, lovely bay, and extremely picturesque scenery render it highly attractive. At present, little trustworthy information is obtainable regarding the climate, but we may fairly suppose that it will be rather colder than San Remo, seeing that the town is less protected against the north-easterly winds. Hotels: Grand Hotel d'Alassio, De Londrès, De Rome. Best route: *Viâ* Calais, Paris, and Marseilles. Cost: First class (about), £8. 15s.; second class (about), £6. 12s.

Allevard.—A small thermal station about twenty-five miles from Grenoble, and some 1,500 ft. above the level of the sea. Population, 3,200. The waters are particularly rich in sulphuretted hydrogen and carbonic acid, with a large proportion of nitrogen, and, in addition to the usual complaints for which sulphur springs are efficacious, namely, diseases of the skin and the respiratory organs, the Allevard waters are said to be of especial value in consumption. The establishment is open from the beginning of June to the end of September. Hotels: Grand Hotel du Louvre, Hotel de la Planta, Hotel des Alpes. Fares from London, *viâ* Paris, Lyons, and Grenoble (about): First class, £6. 4s.; second class, £4. 13s.

Ambleteuse.—A small, quiet, out-of-the-way watering place on the coast of France, between Calais and Boulogne. Suitable for any one requiring complete rest. Habits of the people simple and unaffected; bathing the great source of excitement. Little English spoken. One hotel. Route: By steamer to Boulogne; then rail to Wimille, and thence by carriage (a distance of five miles) to Ambleteuse. Fares: from London to Boulogne, 10s., 7s.; return, 15s. 6d. and 11s.; cost of a carriage from Boulogne to Ambleteuse, 10 f.

* An approximate sum is given in each case; for reasons which will be obvious it is impossible to calculate the fares exactly.

Waterproof paper and pasteboard as strong as parchment are now made by treating the sheets with a solution of oxide of copper in ammonia, so as to partially dissolve a thin film of the paper, which is then dried.

Embalming Corpses.—Dr. Seseman, in the *Petersburger Medicinische Wochenschrift*, states that a corpse may be made to retain the natural form of expression for months by (*a*) injecting into it a solution consisting of 4 to 5 per cent. of aluminium chloride dissolved in a mixture of two parts of alcohol of 90 per cent. and one part of glycerine; (*b*) painting the entire epidermis with vaseline. The quantity of liquid required for injection is in the proportion of one-tenth to one-seventh of the weight of the corpse.—*Chem. and Drug.*

Sanitary Appliances, Etc.

MESSRS. CALVERT'S CARBOLIC PREPARATIONS.

THE preparations of this well-known firm have always occupied a high place among the manufacturers of disinfecting materials. Messrs. Calvert have made a specialty of the manufacture of carbolic acid, and the result of their enterprise is seen in the long list of articles intended for toilet and household use, as well as for disinfection, which this firm offers for public approval.

Of the toilet requisites we are able to speak highly Their soaps, including "Toilet Soap," "Camphorated Carbolic Soap" (an excellent preparation for the nursery), and their specially-prepared "Medical Soaps," containing 20 per cent. of carbolic acid, are agreeable to use, and in many cases of skin and scalp troubles are likely to be highly useful. Among the soaps of this firm, not the least useful are the "Carbolic Soft Soap," which, in the purification of floors and woodwork after infectious diseases, is to be recommended as a valuable adjunct to other disinfecting measures. The "Dog Soap" is a cure for many of the skin troubles which afflict the canine race, and as a preventive of insect pests is found to be highly efficacious. The "Household and Domestic Soap," sold in bars, is likely to be highly valued for its thorough cleansing properties. We have tested these qualities very thoroughly, and are able to give this article full commendation. A "Shaving Soap" sold by this firm is also a useful adjunct to the toilet. Being made in sticks it is handy to use, and produces a lather which aids the process of easy shaving.

The fluid preparations of carbolic acid, sold by Messrs. Calvert, include acid for disinfecting purposes, which is of a strength ensuring its efficacy for the destruction of the germs of disease. The "No. 5 carbolic solution," appears to us well adapted to fulfil this end, and the use of this fluid in sufficiently strong form, provides a secure means of disinfection. The "Carbolic powder" of this firm, may be used with success wherever this form of application may be deemed necessary.

An elegant and agreeable toothwash must be mentioned as included among the preparations of Messrs. Calvert. This fluid forms a most efficient means of strengthening the gums in cases of tenderness, and for ridding the mouth of the aroma of tobacco, the toothwash or "dento-phenolene," as it is named, is most effective. For those who prefer a tooth-paste the "carbolic tooth-paste" will be found handy, and a "carbolic tooth-powder" is also included among the manufactures of the firm.

For the purposes of the surgeon, carbolic tow, carbolised oil, carbolic ointment, and other preparations, have been made by Messrs. Calvert, and the series of samples of their manufactures contained in a neat case, forms a set of specimens well worthy of a place in every museum of materia medica.

The importance of carbolic acid in its various applications to personal and public health cannot be denied. Used with sufficient care, and in a sufficiently strong form, no doubt exists regarding its efficacy as a destroyer of septic material; while in the case of the toilet there are many directions, as shown in Messrs. Calvert's preparations, in which this agent may be made to form a valuable addition to the household luxuries. For an article on "The use of Carbolic Acid in the Lessening of Pain," see HEALTH, Vol. I., pages 359 and 391.

Our Letter : Box

"Conference [maketh] a ready man."—*Bacon.*

LETTERS TO THE EDITOR.

A CURIOUS MEMORY INCIDENT.

SIR,—In reading your very interesting "Notes by the Way" in a recent number of HEALTH, I see you refer to the incident in the drama "Called Back" with reference to the loss of memory, &c. Your remarks bring to my recollection the case of a friend of mine who at the age of fifty took epileptic fits, said to have been brought on by a sudden shock. This lady had the most retentive memory for every incident in her youth: for every lesson that she gained the prize for at school, every cross word said to her by her parents, every piece of poetry learned—and, in fact, had a wonderful memory for everything done up to the time she took the fits; but for things that happened the day before, or anything that happened since she had the fits she had no memory whatever. She had fits regularly for 14 years, and a week before she died she could tell me of a prize she gained at school, and the subject of competition, but did not remember getting out of bed that morning.—Yours truly, S. A.

THE DOG AND FOWL NUISANCE.

June 21, 1884.

SIR,—I have read your correspondence on this question with interest. There is no doubt the law on the matter is defective, inasmuch as I am afraid there is no summary jurisdiction to abate such nuisances as those complained of. "T. A. C." can, however, obtain an injunction to restrain his neighbour from keeping fowls, if they are so great a nuisance to him. With regard to dogs, I am afraid the law is somewhat more difficult of application. The law as to nuisances arising from noise turns altogether on the questions of degree and reasonableness of the user creating the noise. To keep a dog is perhaps quite as natural as, and probably more usual than, keeping a nursery full of children, who sometimes make night harmonious with their music. And it has been held that so keeping a nursery is not a nuisance which can be restrained by injunction. However, as I have said, the question is entirely one of degree; and I think that to keep *one* dog, let him bark never so much, would not be a nuisance, whilst to keep twenty in a populous neighbourhood probably would be, apart from the Public Health Act.

I should advise "T. A. C." to threaten his neighbour with the terrors of the law—or, still better, to mix "some nasty doctor's stuff" in the offending chanticleer's food. If "T. A. C" wants any more information, he can write to me to the care of the Editor.—Yours, &c., LEX.

QUERIES AND ANSWERS.

We would direct the attention of our correspondents to the fact that, owing to the necessity for sending HEALTH to press early in the week, answers to queries cannot, as a rule, appear in the succeeding number of the journal. Every effort is made to secure punctuality in the replies, but we must ask the occasional indulgence of our readers, owing to the large amount of correspondence, which requires assortment and reply.

We must also request correspondents who write enclosing stamps for copies of HEALTH, to address their inquiries to the Publisher, *and not to the Editor.*

GENERAL.

BETA.—We agree with you entirely. There is no doubt of the humiliating character of the exhibition the person in question makes of himself in obtruding his domestic matters on the public gaze. We have no influence or interest in the matter.

C. G., B.Sc., and M. O.—Declined, with many thanks.

A. L.—Not suited for our pages; thanks.

TOILET.—The recipes will shortly be published in HEALTH.

EAGER TO LEARN.—(1) Yes; the skin-disease known as "ringworm" is caused by a fungus of microscopic nature, which selects the skin as the seat of its growth. (2) A term used in pharmacy. (3) The diameter is given in fractions of an inch.

BOY.—"Flexors" are the muscles which bend parts; they are opposed by the "extensors"—see article on the "Muscles" in HEALTH, Vol. I. Thus the hand is shut by the flexor muscles of the fingers, the sinews or tendons of which lie on the palm surface; while the fingers are extended by the muscles the tendons of which you can see moving in the back of the hand.

J. CARGILL.—You mean the "Spongy Iron Filter"—see advertising columns of HEALTH.

XENOPHON.—(1) The substance is not used in modern medicine. (2) Try Vaseline as a basis.

BERKHAMSTED.—There is no doubt at all entertained regarding the legality of cremation—Mr. Justice Stephen's charge settled that point. The only proviso is that it should be carried out so as to avoid any nuisance or injury to public health.

CECALIX.—Not at present, we believe.

SANITARY.

AJAX.—You will find what you require in the Public Health Act. The nuisance can be easily suppressed under the powers that Act confers.

ANDREW BAIN.—Carbolic soap, placed in the receiver, would probably mitigate any offensive odour.

G. J. N.—1. Not so much thought of by modern sanitarians as the second plan. 2. Try Cleaver's Dog Soap (carbolic).

Bingen.—Try Messrs. Woollams for the information you require.

J. Clay.—Yes; but please to remember that "disinfection" is a wide term, comprising a variety of processes, more or less effective in their destruction of disease germs. No disinfectant should be employed which does not, in one fashion or another, *destroy* diseased matter. This is the real test of the efficiency of any system of disinfection.

Castle St.—Due to air-impurity. Look to the ventilation of your rooms.

IX.—We have tried the Albo-Carbon burners with satisfactory results. The light is pure and steady. No gas-lighting can be carried on satisfactorily as regards health without due ventilation, and you make a great mistake in thinking the invention above-named can be satisfactorily used without attention to the room-ventilation.

E. Jamieson.—1. Not adapted for your purpose. 2. Suitable. 3. Impure.

Everton.—Should be used in the proportion of, say, 1 to 20. A weaker solution, 1 to 40, is often employed.

MEDICAL.

Zeno.—It is evident your occupation is entirely against you. The close atmosphere, long hours, and anxious nature of your business, together with the continual exertion, must tell on your health. Without due rest, pure air, and relief from constant strain, no one can be well. Can you not contrive to obtain more exercise in the open air? All your troubles arise from your confined life; and in the absence of fresh air and easier work, it is useless to try any remedies, for you apparently require nothing save attention to ordinary health-laws. One piece of advice, however, we must add, namely, to avoid the quack whose name you give. He is an impostor of the first kind. If you wish address of a reliable medical authority, we can send you such on receipt of stamped addressed envelope.

Q. Z.—Try Dorking or Reigate. Either—but most probably the former—would suit the patient's case.

Spark of Hope.—Thanks for your kind note. We fancy the "Visualer" of Messrs. Vale would be well adapted for you, but, in such a case as yours, we should strongly advise you to obtain an opinion from a good eye-surgeon in the first instance regarding your sight. Eyes should never be trifled with, and the correct form of glasses suited for your case should be determined by an oculist after a thorough examination of your sight. In your case, we should say there is every chance of your sight being improved by the careful selection of glasses.

R. Richardson.—Continue the tonic at intervals. You must persevere with the other health-measures adapted to your case—open air exercise in moderation, cold sponging each morning, avoidance of fluids late at night, food light and nourishing, but not stimulating. In time you will get quite well, but your general 'tone" is not recovered in a day.

Mr. Rose.—[What you mention arose through inadvertence. It is always well, in writing a second time, to repeat your former reply. We do not preserve the letters of correspondents.] We think you would benefit from the following:—Powder of rhubarb, four grains; pepsine, three grains; mix. One such powder to be taken after meals. Try a little Æsculap water occasionally in the morning. Write again, if not relieved. Is your occupation of a sedentary nature? If so, more open-air exercise would do you good.

Frank Deacon.—We do not know of any baths likely to be of service to you. The complaint is not one in which baths are of much, or any, service. We should strongly recommend you to read Dr. Morell Mackenzie's pamphlet, just published, on "Hay Fever." It can be had from Messrs. Churchill, New Burlington-street, London, W., price 1s. In this work you will find the latest remedies and suggestions for treatment.

Htlaeh.—There will be no danger in applying the remedy—for some time at least, although later on it may require to be stopped. You must act on the supposition that there is no special susceptibility on the part of the patient to the remedy. On the first symptoms of any uneasiness, the application should cease.

F. K. R.—Yes; the "Cremation Society" has erected a crematorium at St. John's, Woking, London. Write to the Secretary of the Society, at 11, Argyll-street, Regent-street, London, W., for particulars regarding the use of the crematorium. Cremation is perfectly legal, provided it is not carried on in a manner such as would cause a nuisance, or prove injurious to health. Read Sir Henry Thompson's pamphlet on Cremation, to be had from Smith, Elder, & Co., for full information regarding Cremation in all its aspects.

T. H.—You suffer from a form of acne. You must look well to the state of your general health, and avoid chills. The vegetable diet will benefit your digestive troubles, and you should take the following as a cure for the skin pimples:—Sulphide of lime, twenty-four grains; sugar of milk, half an ounce; mix, keep in a well-stoppered bottle, and take five grains (or as much as will cover a sixpence) every four hours.

G. W. R.—The specks which trouble you are simply due to a slight digestive disorder. See to the state of your digestion. A mild aperient will likely relieve you; take a little Æsculap water in the mornings; and above all, avoid constipation.

J. H.—The case you offer for opinion is one in which it is almost impossible to guide you satisfactorily in the absence of personal acquaintance with the subject of the affection. But we can safely say that you seem to be in good hands, and that if you will be advised by us, you will trust for some time longer to the gentle home treatment which you mention as being carried out. In such cases, recovery is always very slow. If there is no improvement after some months from the present date, we should then advise you to consult as to the advisability of some active meaures. It is just possible that a complete change to the south of England, for instance, and to a mild bracing climate, would do good. Electrical applications and salt baths might be tried later on.

P. P.—Regulate your diet so as to avoid excess of fats of all kind. Vegetables and fruits should be tried, but you must especially avoid constipation. Claret will do no harm if it does not tend to induce the latter affection. Lemons had better be avoided.

Agnes.—Try the effect of taking fifteen drops of *Fer Bravais* in water thrice daily. Let us hear how you are after a trial of this advice.

J. R.—there is evidently need in your case for rest and change. Your taking exercise so soon after food is against you, and it is probable that tea does not agree with you. Try the effect of taking the iron tonic ordered to "Agnes" above. Glad to advise further if necessary.

Solon.—Take the tonic ordered to "Eton" in Health, No. 63. There is no cause for alarm.

Impatiens.—See advice to "Solon" above. You cannot expect to get rid of your troubles of years in a few days. Persevere in your efforts, which, we are glad to hear, have been so far successful.

Sinclair.—We have examined the "Medical Battery Belt" to which you make allusion, and have satisfied ourselves that it is a genuine appliance. Had it not been so, you may be certain we should not have allowed the notice to appear in our columns.

M. F.—We do not know that any air save that of the open sea can be guaranteed to benefit hay-fever. You are as likely to be visited by the pollen of grasses, &c., in Germany as in England. See remarks on "Hay-fever," in "Notes by the Way," Health, No. 63. We think you would be just as well travelling, as you propose, as remaining at home. There are no special risks incurred by your proposed trip.

G. P.—We should advise you simply to use cold water injections, to exercise strict cleanliness, and after washing to use plain Vaseline as an application. See, of course, that constipation is avoided by a vegetable and fruit dietary. Attention to this is the sheet-anchor of all treatment in your case. If not bettered write again.

Scriptor.—Through a printer's error you were replied to in last week's Health under the name "Sculptor." See our advice given under that designation.

Subscriber.—1. Should be tested by means of lead-test papers. 2. The lecture is not published, so far as we know; but (3) the books on "Cookery," in the "International Health Exhibition" series of Handbooks (reviewed in Health, No. 63, page 171) would suit your purpose exactly. That by Mr. Berdmore is what you require.

John Thompson.—Tobacco is a depressor of the heart's action, and acts as a narcotic on the nervous system generally. "Chewing" tobacco is a habit of such filthy and insanitary nature, that we should not advise you or any one else to practise it. Smoking, in moderation, exercises (on most persons) a soothing effect, due to the narcotic properties of the leaf.

Health Seeker.—Yes; the symptoms resemble those of fistula. But you must have a surgical opinion and treatment. No advice of any other kind is worth listening to. If your means are not sufficient, seek admission to a hospital. Only a surgical examination can determine the exact cause of your ailment.

Barum.—Try for dandriff the effect of using a lotion consisting of one ounce of borax dissolved in four ounces of glycerine. Apply a little of this at bedtime to the roots of the hair. See to your general health. Take the tonic (for a time) recommended to "Eton" in Health, No. 63. Wearing a hat all day, and confined

head-perspiration are together liable to induce baldness. Have your hat ventilated. After the dandriff is cured (wash the head twice a week with tepid soft water and Pears' soap and dry thoroughly) use a lotion composed of tincture of cantharides, one ounce; distilled vinegar, an ounce and a half; glycerine, a drachm and a half; spirits of rosemary, an ounce and a half; elder-flower water, three ounces; and add rose water to make up eight ounces. Use this to the hair twice a day.

JUVENIS.—We fear there is no cure for such a deformity save a surgical operation; and, unless the deformity gives you pain, we should not advise you to attempt to remove it.

H. W.—Yours is a case for lighter work, a less confined occupation, and country air. Food to be light and nourishing; and outdoor exercise, in moderation, to be regularly taken. The tonic recommended to "Eton" in HEALTH No. 63, might be taken for a time; but your chief hope lies in less mental worry and lighter work.

DIAMOND.—There is no means save those of surgical kind for bettering your child's condition. Dr. M'Ewen, of Glasgow Royal Infirmary, has been highly successful in dealing with cases of the kind you describe. You should take your child to him for an opinion.

SCOTUS.—No cause in the least for alarm. Your own good sense will tell you so. Often a sign of health and vigour; and, so long as your general health is good, have no fear. Take moderate open-air exercise; cold sponging; sleep on a hard mattress; and avoid suppers and fluids late at night.

PILULA.—See and follow advice to "Eton" in HEALTH No. 63.

W. S. BRADSHAW.—Sorry we cannot advise definitely, as you do not supply any particulars enabling us to judge of the cause of the ailment. All we can at present advise is to ask you to exercise care as to food and avoidance of constipation, and to have moderate open air exercise. Send further particulars regarding habits, diet, ailment, &c.

A. GRANT.—A sign that you require a tonic. Take fifteen drops *Fer Bravais* in water thrice daily between meals. Continue bathing with boracic acid and tepid water.

L. C. T.—1. No; not without contact. You have no symptoms of such an ailment, and are only nervous, and worry yourself over trifles. 2.—See and follow advice to "Eton" in HEALTH No. 63. Don't be morbid, above all things, but cultivate a healthy frame of mind. You have no need to fear.

CAMBRIAN.—Have you tried some of the Australian wines? We advise you to look through them at some agent's or wine merchant's, and give them a trial. If claret is good and full-bodied, it should suit you. A poor claret is worse than water.

C. J. VARLEY.—Advice given to "Scotus" in present number and to "Eton" in HEALTH No. 63 applies to your case.

F. A. B.—Don't read to such a late hour. See advice to "Scotus" above. Over-exertion, mental (as in your case) or physical, is injurious, and acts as a cause of the symptoms of which you complain.

NOTTS.—See and follow advice to "Eton" in HEALTH No. 63.

HANNIBAL.—See reply to "E. Parker" in HEALTH No. 60. The remedy in question is very uncertain in its action.

SYNETTE.—In such a case treatment by a physician is necessary. The disease is often seen in infants. It is not usually dangerous or fatal, and can be cured by appropriate treatment. Oxide of zinc ointment applied externally is used, and various drugs may be given internally; but the child should certainly be watched by a physician from day to day till cured.

CONVALESCENT.—Yes; they may not altogether cease; but they are now diminished so far that you may regard yourself as quite cured. Attend to your health as before, and all will be well.

CLUTHA.—See and follow advice to "Eton," in HEALTH No. 63.

ALBUS.—(1) Yes; continue the tonic (twice daily only) at intervals, for a few days. (2) You could do no harm by trying the Pepsine. (3) Read Gill on "Indigestion" (Churchill). (4) Possibly, but difficult to say; on the whole, experience shows that the proper answer to this querry is an affirmative. (5) No; no sign of such a thing. (6) Claret and water, probably, but the claret must be good.

TWO IN A FIX.—No; if you have the cold sea-bath and can stand it, it might be preferable; but we said "cold sponging," because that can be practised all the year round. The tonic recommended contains iron; there is therefore no need in your case for any other drug.

NESWICK.—Try the effect of making fruits and vegetables a staple part of your dietary. Drink a glass of cold water first thing in the morning; and give up tea and coffee. Claret (if good) is preferable.

O. E. R. S.—We presume what is meant is that all metallic surfaces should be covered with paint. But it is a rare occurrence for such an event as that you quote to happen; and under ordinary circumstances there is no need to fear. The lightning in the case you name appeared to have taken a most "erratic" course.

T. HIGGINSON.—(1) We think you exaggerate the need for movement under the circumstances you name. If you are in good health otherwise, we don't think you should be afraid to venture. (2) Yes, perfectly; although we do not see why you limit the distance in the manner you do.

B. B. B.—Personally we have no faith in such a system. The pamphlet you send us is an extract from one of the "religious" journals, in whose columns quackery of all kinds flaunts itself; and how the journal can pretend to be an authority on the merits or demerits of such a book as that you inquire about, puzzles us to know. The author of the book is a qualified medical man, but there can be no hesitation in saying that his practice in thus advertising himself is against all professional rules and good taste. If you ask for our opinion of the treatment, we shall simply say that, on its merits, any system professing infallibly to cure such a disease will be viewed with great suspicion by all medical men. If the author of the book you name acts in accordance with the spirit of his profession, he will explain in the medical journals the principles of his practice, and not leave his system to be lauded by "D.D.'s" and others who are not professional scientists. Our advice to you is to place yourself in the hands of a qualified practitioner, innocent of quack-tendencies, and who will be able to bring to bear on your case the light of the latest medical research.

ALBERT.—You were replied to in No. 63. If you took the trouble to read our "Notices to Correspondents," you would know you could not have had a reply before last week. You would save yourself (and us) trouble if you would exercise a little attention and common sense.

S. BINGHAM.—Food to be light—light boiled eggs, milk, soups, rice puddings, &c.—little or no solids to be taken for a time; eat vegetables and fruits; brown bread (unless over-irritating); porridge and milk; and avoid tea and coffee. After practising this diet for a time you may begin cautiously to take ordinary solid meats; but fruits and vegetables should always form part of your diet. Drink a tumblerful of cold water first thing each morning on rising.

PLURUS (Bolton).—Try the effect of taking, for a time, the tonic prescribed to "Eton" in HEALTH No. 63, and let us hear how you are after a trial of the medicine. You evidently require such a tonic, and hot salt water baths might also be tried. Food to be light and nourishing, and a little good claret taken with dinner should be tried.

J. M.—Rest after food is essential in your case, and Pepsine should be taken along with the meals. Your trade is a little against you, of course, and necessitates fatigue. But with care you need not fear. Your diet is a fairly good one. Your symptoms after meals will be relieved by rest and the Pepsine above ordered.

A. B. C.—We do not agree with the New York opinion to which you allude. The result therein described may occasionally happen, but is by no means frequent. The second part of the opinion is simply absurd, and is contradicted by all the facts of surgical and medical experience in this country, at least. The New York opinion, besides, emanates from a person who is certainly not known as a "shining light" of medicine in that city. A suspensory bandage might be tried, but the "surgical treatment" meant is of a severe and operative kind.

ESPÉRER.—No need to be afraid or morbid. You require—firstly, rest; secondly, cold sponging each morning; food to be nourishing, and to take for a time a teaspoonful of Fellows' Syrup of the Hypophosphites thrice daily (an hour before meals) in a wineglass of water. Try this advice, and let us hear how you are. We presume there is no impediment on the other side, and you should make clearer wherein your difficulty lies.

ACHING MOLAR.—Yes, by all means have the teeth extracted. They can be extracted painlessly through the use of nitrous oxide gas, which all dentists now employ.

TIMOTHY.—1. Any of the Western States, not too far south, would suit you. 2. Not that we know of. 3. Food to be light. Attend to digestion especially, as an attack is often caused through indigestion. A change of climate is likely to do you good.

SEEKER FOR HEALTH.—See article in HEALTH No. 63, entitled "A Valuable Remedy," dealing with the Cascara Bark preparations as a cure for constipation. Your food should include vegetables and fruits. Try drinking cold water each morning on rising. Don't begin to physic yourself with pills and aperients, otherwise you will only increase your troubles. Once your digestive troubles are bettered, your other complaints will cease.

T. P.—Eat a few of Braggs's Charcoal Biscuits, and look to the teeth and state of the stomach. Calvert's Dento-Phenolene as a tooth-wash would benefit you greatly.

J. R.—You require rest and a tonic. Read and follow advice given to "Espérer" above, and take the tonic there recommended.

[*Continued on page* 192.

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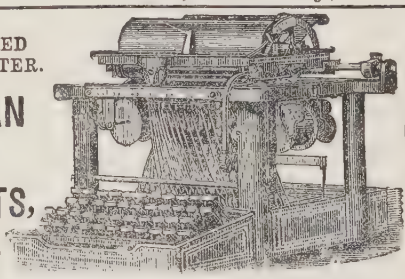

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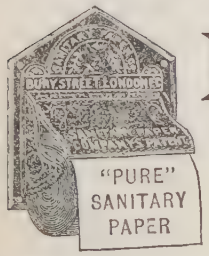

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You are probably highly nervous, and have been over-exerting yourself. Rest for a time, completely. If there is any deficiency or impediment on the other side, such as you describe, why not obtain a medical opinion regarding it? Probably some very slight treatment might put everything right.

D. HORNE.—You must make a complete change in your food. Give up tea and coffee, and try the effect of including fruits and vegetables in your dietary. The mixture recommended to "E. C. P." in HEALTH, No. 62, should be tried, as there directed, for a time.

A. O. E.—Are you not overworking yourself in your office? Look to this point. Frequently, sleeplessness is cured by a change of air. Try what a sniff of the sea at Granton or Leith, will do for you in the evening, and give up all extra mental work, of course. Eat your last meal earlier than usual, and take a very light repast—a biscuit and milk, say—half-an-hour before bed. Glad to be of any further service, if required.

RUSSIE.—Our best advice to you is to recommend you to see a physician who makes a speciality of such cases. If desired, we can send you address of such an authority on receipt of stamped addressed envelope. You require careful treatment, and to be periodically seen by a physician who understands such cases.

J. B. BARTIN.—Not an uncommon affection, and possibly dependent on a low state of health. Primarily, we should recommend you to look to your health at large; and to apply carbolated vaseline to the affected part for a day or two. Let us know the effect of this recommendation. Strict cleanliness and washing with Calvert's Carbolic Soap, morning and night, is also necessary. You will see, of course, that all sources of external irritation are removed. Glad to be of further service. If a tonic in your case is needed, try fifteen drops *Fer Bravais* thrice daily in water.

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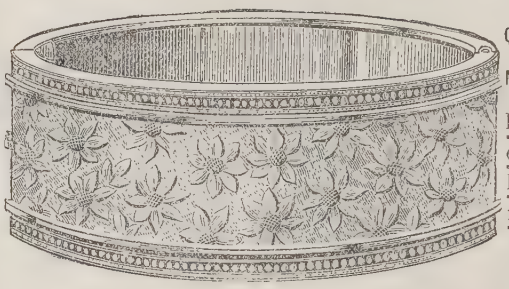

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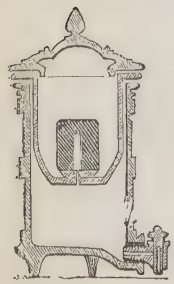

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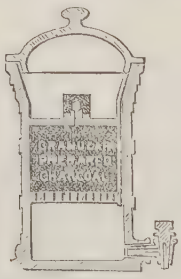

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• HEALTH •

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, JULY* 4, 1884.

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Notes by the Way

"Health is the foundation of all our physical happiness."—*Herder.*

Last week's lectures at the International Health Exhibition dealt with topics at once interesting and instructive. Dr. Cobbold's discourse on the "Parasites of Meat and Food," Dr. Evatt's lecture on "Ambulance Organisation in War and Peace," and Mr. J. F. Hodgett's lecture on "Anglo-Saxon Dress, Food, and Houses," formed three treats in the way of popular instruction which, we were glad to note, seemed to be highly appreciated by the public. Apropos of the "mackerel scare," to which so much allusion has of late been made, Dr. Cobbold remarked the utter harmlessness of all known parasites of the food-fishes of this country—that is, when the fishes are properly cooked. About fourteen different species of parasites select fishes as their hosts, twelve inhabiting the digestive systems of the fishes, and two adhering to their gills. The latter are low crustaceans—"poor relations" of the shrimp and crab tribe—and as such are of no account. The other parasites are all destroyed by a temperature of 115° Fahrenheit; so that it is to be hoped we have heard the last of this foolish *canard* regarding mackarel-parasites and their supposed effects on the human frame.

✣ ✣ ✣

Here is Dr. Mortimer Granville's prescription (contributed to a medical contemporary) for "hay-fever." As a contribution to the literature of this prevalent ailment the note may prove useful to our readers. "The formula," says Dr. Granville, "runs thus:—℞. Boracis pulv. gr. xx.; capsici pulv. gr. xv.; ammoniæ carbonatis gr. x. Misce. Fiat pulvis. The prescriber will, however, get no good result unless I explain. Take of borax, very finely powdered and perfectly dry, twenty grains; of capsicum, which must be recent, and powdered to form a fine dust, after being carefully and quickly dried, fifteen grains. Mix these thoroughly, and be sure that the powder thus formed does not cake. Then add ten grains of finely-powdered carbonate of ammonia. Mix again by rubbing and shaking together, and keep in a small bottle not full, so that it may be shaken each time before using it. The point is this: the capsicum must rise with the ammonia. If the ammonia only be taken into the nasal passage, and into the fauces and larynx, no sort of good can be done."

Dr. Granville is thus careful to emphasise his practice for the reasons detailed in the following words:—"The test, subjectively, is that, after the use of the snuff, there comes on rapidly, though generally after a short interval, a peculiar 'tingling' in the parts, which differs totally from the sensation produced by inhalation of ammonia vapour, and resembles nothing so much as the 'feeling' caused by touching the mucous membrane with the cork from a bottle containing tincture of aconite. If this sensation be experienced, the powder is well made, and will prove effective. Any medical man who simply writes the prescription for this snuff, and has it made up by two or three chemists, will at once see why I was, and am, anxious to secure its careful preparation. Most dispensers will use what is practically 'cayenne pepper,' and produce a perfectly useless powder, which irritates, but does not induce that specific exhaustion of, the nerves, without which no good result can be gained."

✣ ✣ ✣

Our French neighbours are threatened with a cholera epidemic. Toulon is already in a state of sanitary siege; and it would appear that, as usual, neglect of health-laws is at the root of the visitation in question. The cholera at Toulon appears to have originated, as far as is known, in the town itself—at least, there is no evidence to show that any vessel with cholera on board had lately arrived in the port. The outbreak began on June 14th, when a death from cholera occurred; on the 20th two more deaths were registered, and, later on, ten fatal cases were reported.

✣ ✣ ✣

Whether Toulon has been infected from without, or presents us with a case of self-infection, one thing is certain—namely, that there exists sore need for sanitary reform on the part of the inhabitants. The whole town is, sanitarily speaking, in a deplorable state. There are no sewers in the older part of the city. All the refuse is carried into the harbour; and as the Mediterranean is practically tideless, it can well be understood how fully the conditions—those of sweltering filth—for a cholera outbreak were represented in Toulon. Again, the town is a perfect nest and breeding-place of typhoid fever.

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A Dr. Galliott, of the French Marines, it seems, wrote an essay on typhoid fever at Toulon, and in 1881 received a gold medal from the French Government as a reward for his labours. The author, however, was mysteriously enjoined by Government authority to secrecy respecting the results of his investigations—so detrimental to the sanitary state of the town were his facts and conclusions. Thus, at the Mourillon Barracks at Toulon, over 1,000 cases of illness had occurred in twelve months among 2,000 soldiers. Of these ailments fully half were cases of typhoid fever, the remainder, like the typhoid cases, being attributed to bad drainage. It is believed that Dr. Galliott's essay dealt with such alarming facts as these; and now that Toulon has again become a nest of cholera (it suffered severely in 1865) perhaps the French Government will think it worth while to cause inquiry to be made, and reform effected in the directions so plainly indicated by their own officials.

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We hear that the Vaccine Institution at 95, Lamb's Conduit-street, London, at which vaccination with animal matter (or calf-vaccine) is practised, has of late been crowded each receiving-day by persons anxious for revaccination. This will be gratifying news to all, save anti-vaccinators. We have all along urged that the occasional return to animal vaccine becomes necessary in face of the

well-nigh certain modification which lymph must suffer through more or less continuous transmission in the human subject. At 85, Southampton-row, W.C., we hear a relief station, for the vaccination of males only, has been opened; the days of attendance at both places being Tuesdays and Thursdays, at 10.30 a.m.

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VACCINATION properly carried out with pure human lymph, or with animal vaccine, is an operation which is not only a preventive against small-pox, but also one which, in the vast majority of cases, is absolutely safe for even delicate children. It is careless vaccination, bad or ineffective lymph, added to special and unknown susceptibility to inflammatory diseases on the part of certain children, which alone give anti-vaccinators any support—such as it is—in bolstering up a weak and very one-sided cause.

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As most persons are aware, tobacco-smoking has long been credited with causing a form of blindness and other eye-troubles. The wisdom of "hearing the other side"—a practice which, by the way, over-zealous reformers are not always given to exhibit—is illustrated in this case by the results of the investigations of Mr. Shears, of Liverpool, into forty cases of tobacco-vision, or "amblyopia," as the affection is technically termed. Mr. Shears's conclusions are—firstly, that wasting of the nerves of sight "is very rarely met with as the result of excessive smoking"; secondly, that in the affection (amblyopia) above named, "tobacco is the essential agent in producing the failure of sight"; and, thirdly, that "great moderation in smoking, and especially the employment of mild forms of tobacco, is all that is necessary to ensure recovery."

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MR. SHEARS adds certain instructive details to his account of the cases above referred to. He visited the tobacco factory of Messrs. Cope, of Liverpool, in which about 1,200 men and women are employed. In no case had any failure of vision been noticed as the result of employment in the factory—this result being contrary to the opinion expressed by a foreign authority. Many of the operatives had spent ten years in the employ of Messrs. Cope; and hence the idea regarding the ill-effects of tobacco-dust on the eyes may be regarded as disproved. In connection with this topic, it may be interesting to note that the opinion that snuff-taking was preventive of consumption was strongly held, if we mistake not, by a well-known physician practising in the North of England.

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A NEW danger to health, coming, as do most perils of the kind, from ignorance and carelessness, rather than from any ill-intent, has been unearthed in the shape of a practice inaugurated by a lady, who, discovering that her children were troubled with scurf after scarlet-fever, took them to a London hairdresser's, and had their hair brushed with the machine. Shaking the bed-clothes of a scarlet-fever patient out of a bedroom window may be, and undoubtedly is, a powerful means of disseminating that fever; but even this practice is as nothing when compared with the diffusion of fever germs from the rotary-brush of the hairdresser. In scarlet-fever, as in small-pox, the skin-scales become charged with the fever-poison. Hence the proceeding of the person who transported her children to the hairdresser's shop was tantamount to the conversion of that emporium into a centre of infection of the most direct kind. When will a knowledge of ordinary health-laws be so widely diffused that people will guard against the practice of such an enormity as that we have just described?

Original Essays

"Life is not to live, but to be well."—*Martial.*

HOW TO STRENGTHEN THE MEMORY.

BY DR. ANDREW WILSON.

IN last week's HEALTH I endeavoured to show why memory was largely a matter of association or linking together of ideas. The commonplace fact that we recollect thoughts and ideas which are connected by some bond to other ideas, more readily than we can recall detached thoughts, is explicable, I believe, only on the theory that the brain-cells which are concerned with the work of thinking form a connected series in the grey matter of the brain. Thoughts and ideas, in other words, do not exist as separate mental units, either as regards their actual occurrence or their storage in the brain-cells. It may legitimately enough be held that no act of life is performed independently of some preceding act or circumstance. We are not always able to trace out the connexus of our actions and our thoughts it is true. But it is, at the same time, a matter of tolerable certainty that our acts of one day have been largely determined by those not of the preceding day, but probably of all preceding days of our life, and by the acts and thoughts of our inheritance from parents as well. To argue otherwise, would be to overlook the influence of heredity and parentage in the formation of character and of mental traits. And memory, I repeat, like every other intellectual portion to which a man falls heir, is, in the same fashion, a matter of links, connections, and associated thoughts. It is on some such basis that we may explain why such associations exist at all in the act of recollection, and it is on such an assumption that the true culture of memory must be satisfactorily carried out.

A "first principle" in the education of the memory appears to me to consist in *the cultivation of habits of mental association as part and parcel of our daily practice of thought.* All systems of mnemonics utilise this principle of association in the culture of the recollective powers. Their aim is the endeavour to instil, by one means or another, the habit of linking together those thoughts that are naturally related. The more easily this is accomplished, the more readily does the memory become available for its work. The difference between one system of memory-education and another really lies in the more or less natural method in which the teacher seeks to group the thoughts of his pupils, and to accustom them to arrange their ideas. I may go still further, and say, that the best system of memory-training is that which succeeds in elucidating and practising the method of thought-linking which is most natural and which accords most readily with the mental habits of mankind or with the special studies of the pupil. It is the want of such a natural system of "linkage" which defeats most of educative efforts of our day. Masses of facts are presented to the minds of boys and girls at school, in a crude, undigested form. They are left to acquire the facts in question without the slightest attempt at making an arrangement or formulating a method of remembrance. Memory-powers are not encouraged, but the reverse, as far as I can observe, in our system of education. I say this the more freely because I have been engaged for years in the practice of teaching, and because I have been a daily witness of the defects of education in this respect.

As an illustration of what is meant by that natural association of thoughts which forms the beginning and end

of memory-culture, I may select the following example. It is desired, say, in teaching botany, to impress on the pupil's mind the parts of a flower. As a matter of experience, science-teachers find that notwithstanding abundant demonstration and repetition of names, the facts taught are forgotten within a few days or even hours after the lesson. The pupil having been shown the parts of the flower, having heard them named, having named them himself, and having written them down in his note-book, might be regarded as fully supplied by eyes, ears, and intellect with the knowledge it is desired he should remember. Yet, on being questioned next day respecting his lesson, his mind is often a blank regarding a full half of the facts he was taught. The reason of the teacher's disappointment is not far to seek. The facts were supplied to the pupil without any attempt at associating them. Even in "learning" the multiplication-table there is association of numbers, so often repeated, that the mere rhythm of the table fixes the details on the mind; but in the botanical lesson, and with all its demonstration of the objects with which it deals, there has been no affiliation or "linkage" of ideas.

In the practice of teaching, it is easy, I think, to better this state of matters. I have found, as a matter of experience, that without using any artificial stimuli to memory in the shape of links or clues, the facts presented say, by a flower, may be made to dwell permanently in the mind. Thus, suppose I am dealing with the green *calyx* of a buttercup, forming, as does the *calyx*, the outer circle of leaves in the flower. The pupil sees the five green leaves, he calls them *sepals*, and he knows they form the *calyx*. Now, if I allow him to think of *calyx* alone, or of *sepals* alone, I feel tolerably certain he will not recollect one or other—in all probability, he may forget both. But, if I insist on his never thinking of one (*calyx*) without at the same time thinking of the other (*sepals*), I am almost confident both will be remembered. So is it with other parts of the flower, and so is it with all other studies. We do not require artificial links when, as it seems to me, nature has, in the majority of cases, supplied natural links in the ordinary association of the objects we think about. If I am content to allow a pupil to think of the parts of the pistil of a flower as three separate and distinct items—*ovary*, *style*, and *stigma*—the chances are that when he desires to recollect the parts of the pistil, his memory will fail him, simply because the parts have never been associated in his mind. But if, on the other hand, he is taught from the first to think of *ovary*, *style*, and *stigma* as three connected ideas and parts, he can no more avoid remembering all three than he can think of a man as a being *minus* a head.

This natural association of thoughts serves our turn in the acquirement of the memory-powers which stand us in good stead when we gain the power of repeating poems and other compositions, involving, it may be, many hundreds of lines and ideas. As a matter of personal experience most of us know that we recollect the gist of the poem and the succession of its verses most readily, when the association of the events it describes is clearly kept in mind. I know an actor who, without possessing a good memory in the ordinary sense of that term, always appears letter perfect in his parts. His method of acquiring his part illustrates the natural memory I advocate for all. Instead of contenting himself with his part, cut up, as usual, into the disconnected sentences which the cues of the other characters suggest, he procures the entire play, reads it over carefully, and gains a clear idea of the succession of events depicted therein. A natural association or broad outline of connected nature is thus suggested in the first place to his mind. Thereafter he studies his own part, and the detached sentences of which it consists, as that part remains in the entire book of the play. He thus strengthens the natural association of ideas which have been gained by his perusal of the entire play in the first instance. Then, having so far educated his mind in the complete production, he proceeds to con over his own detached part as usually supplied, and finds that the otherwise meaningless sentences of the "cut part," have already set in his mind into a harmonious connection, easy of remembrance. This is only another illustration of the natural method of memory, practised without the aid of links or associations other than those the subject in hand naturally supplies.

At some future date I propose to return to the topic of memory and its culture. I trust the hints given in the present series of articles may be found useful by those who desire to cultivate the recollective powers in a rational and natural fashion. One observation, however, may be made by way of close to these papers—namely, that it may well become a matter of belief that we never actually lose recollection of whatever has been seen, heard, or otherwise conveyed to the inner chambers of the mind. The tune once heard during an operatic performance is perfectly reproduced, months or years afterwards, either spontaneously, or after the faint suggestion of a single bar. The poem casually repeated by a friend recurs line by line long afterwards. The face and name of a person whom we met years ago flash suddenly across our mind when we are thinking least about him; and even when we cannot recollect the exact name of a person or thing we often find ourselves unconsciously thinking of the first letter or syllable of the name we wish to discover.

The mind-chambers seem to me to resemble most closely the photographer's store-room, where he keeps the negatives of his customers whose portraits he has taken. When we desire to call to remembrance any name or event relating to the past of our lives, the mental photographer is set to work seeking for the negative which was taken years ago. Now and then he stumbles upon a near approach to it, as the mind suggests the clue to the correct thought. But when the true negative is found, the thought is at once printed off therefrom, and the mental photograph received years ago is reproduced in all its primitive distinctness. The process of memory is merely one of finding the mental "negatives" of things seen and heard for their present reproduction. The difference between a good memory and a bad one merely consists in the facility with which the former arranges and finds the negatives it may require for present use.

Scott's Midlothian Oat-Flour.—Messrs. A. & R. Scott, of Kingston, Glasgow, and Finsbury-square, London, have prepared a singularly pure and nutritious "Oat-flour," which bids fair to take high rank among the food products which are specially adapted for infants and invalids, and for the use of dyspeptics in particular, whose digestion is weak, and whose stomachs refuse to assimilate foods of ordinary kind.—Ed. Health.—[Advt.]

Medical and Sanitary Exhibition, 1881.—Award of Merit.—Diabetes. Van Abbott's Gluten Bread, and all other suitable Foods for Diabetic Patients. Dietary Tables and Price Lists post-free on application. Van Abbott, 5, Princes-street, Cavendish-square, W.—Delicate Children and Adults Suffering from Nervous Depression. Van Abbott's Hypophosphite of Lime Biscuits, for Delicate Children, especially those suffering from Deficiency of Bone, Weak Joints, or Debility, and Adults suffering from Nervous Depression. Each Biscuit contains five grains of the Hypophosphite of Lime. "Quite free from disagreeable taste, and taken willingly by Children, and certainly provide an excellent means of administering this valuable compound. Our analysis proves the accuracy of the printed descriptions on the labels of the boxes. The Biscuits were suggested by Mr. W. Adams, of the Orthopædic and Great Northern Hospitals." — *Lancet*, Nov. 4 1876.—Van Abbott, 5, Princes-street, Cavendish-square.—[Advt.]

THE TRICYCLE, AND ITS RELATIONS TO HEALTH.

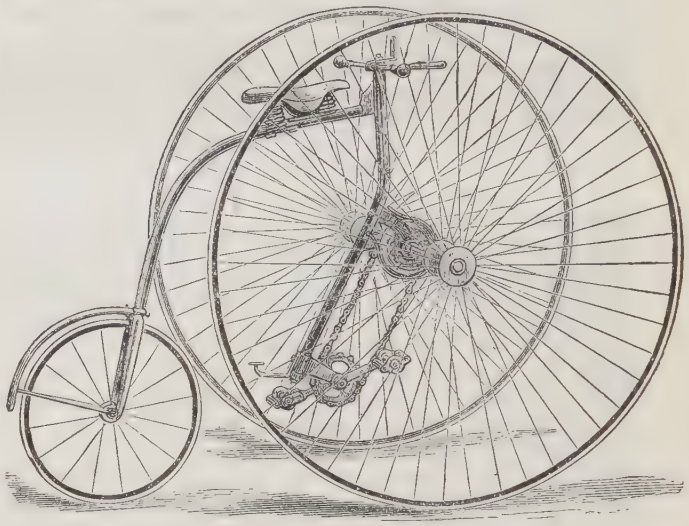
By Various Writers.

FOURTH PAPER.—THE CHOICE OF A MACHINE.

By Sigma Smith.

Judging from appearances, it would seem to be almost as difficult to choose a tricycle as it is to make a satisfactory choice of a wife. In fact, to some men it is actually more difficult to hit upon a tricycle to suit their needs than it is to secure a partner for life. One reason may possibly be that when a wife is in question, there is a certain amount of mesmeric attraction at work—and less cogent reasoning—and the object to be chosen can often manage, by a series of very nice and delicate little tactics, to put the chooser on the straight track for the fatal noose. A tricycle, however, has no such power, and there are so many, of varying shapes and of varying properties, and, moreover, recommended in so many different ways, that a would-be purchaser is often driven to the verge of distraction by the multiplicity of machines that are thrust before him. So soon as it becomes known among a man's acquaintances that he has at last screwed up his courage to the sticking-point, and intends having a tricycle, than he is inundated with advice from his friends, each one of whom is anxious that the tyro shall purchase the machine he rides himself—and often that he should purchase his worn-out machine! This would seem to be an immutable law, and perhaps a very proper state of things too, in a measure.

At the present time there are three leading types, indeed, I may say four, as the Coventry Rotary cannot certainly be left out of the running, and in construction this machine is different from any other. It has one large driving-wheel, and two small steering-wheels on the opposite side of the rider, being somewhat crab-like in appearance. Then there is the front steerer of the Humber type, which is essentially a front steerer, inasmuch as it steers by bodily moving the two front wheels in the required direction for progress. This type has two parallel driving-wheels and a trailing-wheel, the axle turning on a pivot by the action of a handle bar similar to that of a bicycle, and the rider sitting between the two driving-wheels on a saddle supported upon the trailing backbone. The leading machines of this type are the Humber proper, the Carver, the Sandringham, the Royal Mail, the Cruiser (which steers by side spade-handles instead of the bicycle handle-bar), the Traveller, and a machine made by Pausey, of Clapham. I myself at present ordinarily ride a Carver (alternating with an Imperial Front-steerer, fitted with the crypto-dynamic hill-climbing gear, of which more anon), and find it to be a most easy-running and reliable mount—eminently satisfactory in all respects—but the same may be said of each one of those I have mentioned (indeed, I rode a Sandringham in a 100-mile ride on Whit Monday, and did the distance without training in eleven hours riding time), and a purchaser would be certain to receive satisfaction from any of the firms named. Humber, Marriott, & Cooper have works at Beeston; Carver at the Alfred-street Mills, Nottingham; the Sandringham is the product of the Coventry Machinists Co., 15, Holborn Viaduct; and the Cruiser (Hillman, Herbert, & Cooper), and the Traveller (Singer & Co.) are also to be seen in the respective warehouses on the Viaduct.



The Humber Type (Front-steerer, Rear-trailer).

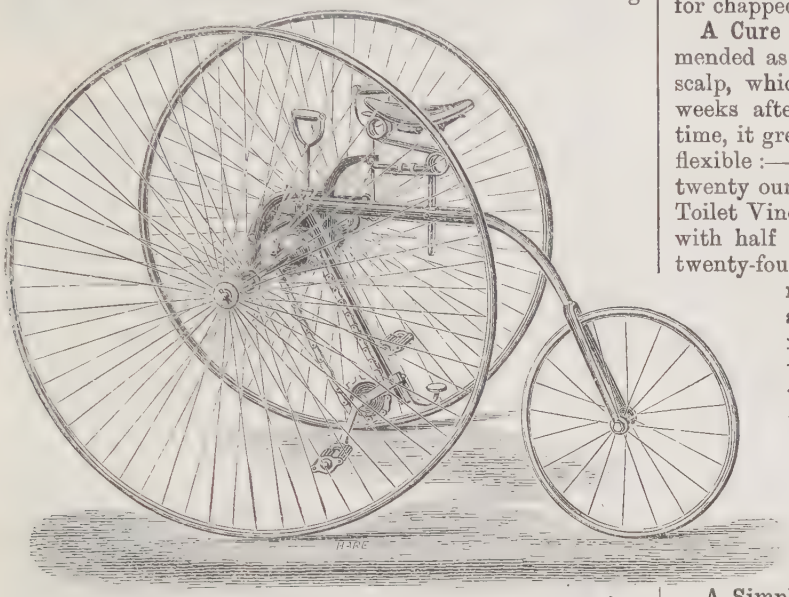
This class of tricycle finds great favour with the younger men, and especially with those who have been accustomed to the bicycle, which, indeed, it much resembles in ease of running and in its general sensations. It requires some practice before it can be managed with comfort and safety; but the needful familiarity once gained, it is a true pleasure to ride it, as it glides along so steadily and with so little exertion and noise, for these machines are the most silent, when running, of any. They are, on the whole, the fastest tricycles extant, and are very good hill-climbers. In practised hands, hills can be descended with speed and safety, but they are not so comfortable in this respect as the front-steerers, of which I shall next speak. From their construction, as will be seen by the sketch, they are unsuitable for ladies. Owing to their build, and the "hang" of the machine, a considerable quantity of luggage can be carried without any appreciable effect upon the work of propulsion, as, being fixed in front, luggage rather serves a good purpose than otherwise, in taking some of the weight off the trailing wheel by balancing the machine forward. All have good brakes, that in the "Carver" being especially handy, particularly for the cyclo-photographer who uses his machine instead of a tripod, as the brake, being automatic, when once fixed the whole machine is held rigidly in one position while the focussing is being done and the view taken, besides which, under the automatic arrangement, there is no strain on the fingers when descending a long incline. It is only just to Messrs. Humber, Marriott, & Cooper to say that this excellent and ingenious type of tricycle is their special invention, but, the protection having lapsed, nearly all the makers have taken the pattern up, and thus this "front-steerer, rear-trailer" has become an established general type, instead of being a speciality belonging to and produced by the one firm only. Probably riders and the other makers will, sooner or later, show their appreciation of the ingenuity displayed by Messrs. Humber; but, meanwhile, all that is being done by the makers is to copy and rejoice that they are able to do so, and the riders in general reap the benefit of the broken monopoly.

Swimming and Ling's Swedish Exercises.—Mrs. Florence Williams, Certificated Teacher. Schools and private families attended.—The Crown Baths, Kennington Oval, S.E.

Sanitary Inspections.—Fee for Survey and Report, in London, 2 Guineas. Estimate given and Improvement Works carried out when required.—The Sanitary Engineering Co., 115, Victoria-street, Westminster, S.W.—[Advt.]

Loss Prevented! Time and trouble saved, and linen and clothing protected, by using the "London Linen Marker," Name, Monogram, or Initials, 2s. 6d., post free. Name or address in Self-Inking Nickel Press, 3s. 6d. to 4s. 6d., complete. Stamps for business or private use. Send for patterns. The London Rubber Printing Co., 33, Cheapside, London, E.C.

In ordering a machine of the Humber type care should be taken not to have larger wheels than 44 in. for a tall rider, and even 40 in. will not be found too small for those of average height, provided, of course, that it is well "geared up"—*i.e.*, that the pedals revolve much slower than the driving wheels, which is arrived at by increasing the size of the cog-wheel fixed to the pedals as compared with that on the axle. By this means the wheels may be made to attain the covering distance scope of larger wheels, and retain the slower rate of pedalling of the larger wheel, while still using the small wheel mentioned, and thus saving weight in construction. As the wheels have to be bodily moved by the cross-handle bar in the act of steering, the lighter the wheels—and this in a great measure depends upon the diameter—the less is the actual effort needed to bring



The Cruiser Tricycle (packing into a case for transport by sea).

about the steering. I may mention here that in my opinion it is only the "Humber" type of machine that can be judiciously fitted with small wheels, and when dealing with the machines of this particular class I fully endorse all that has been written upon the subject of small wheels.

In subsequent papers I purpose to go more exhaustively into the subject of "gearing" up and down, and also the various "two-speed gears" that give the maximum and minimum of gearing in one and the same machine, but at present the subject is "The Choice of a Machine."

The Action of Coffee.—A communication to the Paris Academy of Sciences shows, from some experiments made on dogs, that moderate quantities of coffee always increase the process of nutrition and the respiratory movement. Doses too large produce retardation of the heart and diminution of the nutritive process.

The Snail Season.—The snail season has set in at Paris, and these peculiar delicacies are being sent to town in huge cases from Burgundy, Champagne, and the Jura. If left in peace, the snails would live for two years, going to sleep from the end of September till the spring; but, as they come into season in the winter, they rarely enjoy long life, and adorn Parisian shop-windows as fat *escargots de Bourgogne*, delicately ornamented with parsley. The regular wholesale snail merchants allow their stock to roam about the garrets, but are obliged to keep every cranny closed, as snails are remarkably clever in making their escape.

Personal Health

"Be timely wise;
With health all taste of pleasure flies."—*Gay.*

HINTS FOR THE TOILET.

(Compiled from Various Sources.)

Arnica Jelly for Chapped Hands, &c.—Starch, two hundred and eighty grains; glycerine, four ounces; water, one ounce. Mix; heat to 240°, or until the starch-grains break and the mass appears transparent. When nearly cool, add tincture arnica, half an ounce, with oil of rose and red colouring to suit. This forms an excellent preparation for chapped hands, face, &c.

A Cure for Scurf.—The following is very highly recommended as being an *unfailing* remedy for dandruff in the scalp, which it renders clear white in from three to six weeks after its use has commenced; while, at the same time, it greatly improves the hair, rendering it bright and flexible:—Flowers of sulphur, one ounce; distilled water, twenty ounces; elder-flower water, ten ounces; Rimmel's Toilet Vinegar, 2 drachms. Agitate the flowers of sulphur with half the distilled water as often as possible during twenty-four or thirty hours; pour off the liquid, and repeat the operation with the rest of the water, and filter the two lixiviates together. Mix in next the elder-flower water; and, lastly, add the toilet vinegar, shaking the mixture several times before bottling and putting up for use.

For Insect Bites.—Decoction of quassia, applied to mosquito bites, constitutes an excellent remedy for the relief of the itching and irritation. When applied to the exposed portions of the body it is also a preservative against the attack of those insects.

A Simple Toilet-Water.—Take of Orange-flower water, nineteen fluid ounces; best glycerine, one fluid ounce; borax, quarter of an ounce. Mix. This is an excellent skin-preservative. It possesses the property of preventing scars occurring after burns or wounds, and even of removing or considerably reducing scars previously formed.

Ointment for the Cure of Acne, or "Blackheads."—Benzoated lard, two and a half ounces; iodide of sulphur, one drachm. Make an ointment. Apply to the parts affected, with a fair degree of friction, night and morning, and after a day or two it will be found that the skin-follicles may be restored to their natural condition with the aid of hot water and a little pressure here and there with the nails. When this has been accomplished, a lotion made by adding ten grains of sulphate of zinc to an ounce of water should be daily employed for a week or two.

For Cold in the Head.—Sulphuric ether, one-and-a-half ounce; chloroform, one ounce; tincture iodine, half an ounce; tincture camphor, half an ounce; oil of tar, quarter of an ounce. Mix; inhale carefully and for short periods at a time, closing the nostril after each inhalation, and forcing the vapour into the nose.

A Moth Powder.—Lupulin, one drachm; scotch snuff, two ounces; powdered camphor, one ounce; black pepper, one ounce; cedar sawdust, four ounces. Mix thoroughly, and sprinkle on the furs and woollens to be protected.

For Wrinkles.—The following is said to be an effectual preparation for this purpose. If persevered with, it will either entirely remove or greatly diminish wrinkles of considerable standing, while as a preventive agent it will be found satisfactory:—Take acid tannic, one ounce; ammonia

alum, one ounce; glycerole of starch, six ounces. Mix perfectly, and apply with gentle friction to all "wrinkled" portions of the skin. If desired, the preceding may be tinted and scented in any appropriate manner. Another preparation for the same purpose, in the form of a "wash" or lotion is prepared:—Take elder-flower water, seventy parts; Decoct. rad. *Berberis vulgaris*, thirty parts; Sodæ boracis (*Californian*), four parts; Sp. vini. rect., twenty parts; Ess. bergamot, four parts; Ess. geranium, four parts. Make a solution of the first three ingredients, then mix the essences with the spirits of wine and add them to the former, stirring well. In using this lotion the skin should first of all be cleaned by sponging it with a little rose water or plain soft water, to which about twenty minims per ounce of liq. ammon. aromat. has been added, and drying thoroughly with a rough towel. The lotion may be advantageously applied with a soft rag or sponge, and should not be wiped off, unless just before going into the open air.

Alcohol in a Bushel of Grain.—Grains of the different kinds produce alcohol in about the following proportions:—Corn affords 40 lb. of spirits of the specific gravity of 0·9427, containing 45 per cent. of absolute alcohol for each 100 lb. of grain; wheat, 40 to 45 lb. of spirits; barley, 40; oats, 36; rye, 36 to 42; buckwheat, 40. Now 40 lb. of such spirits equal $3\frac{1}{2}$ (3·5) gallons of government proof spirits. Taking corn at 56 lb. per bushel, rye at 56 lb., wheat at 60, barley at 48, oats at 32, and buckwheat at 52, these grains should afford the following quantities of proof spirits per bushel. Corn and rye, each, 1·96 gallons, or almost 2 gallons; wheat, 2·1 gallons; barley, 1·68 gallons; oats, 1·12 gallons; and buckwheat, 1·82.—*Scientific American.*

Electric House Bells.—To give our readers some idea of the rapid progress now being made with electric bells for houses in this country, we may mention that a contract has been completed for the fitting up of the whole of the Richmond House Estate, comprising no less than 286 houses, including six licensed ones, with the telegraph bells and indicators of Messrs. Francis & Co., Eagle Telegraph Works, Hatton Garden. This firm, we learn, are also actively engaged in the manufacture of stores for a similar undertaking at Manchester, thus showing that for all ordinary communications, and particularly as applied to our homes, this system holds recognised advantages, and it seems that now scarcely any new property is considered complete without these improved and necessary conveniences.

Evils of Over-Education in Girls.—The first bodily defect to which I shall refer, as the result of over-stimulation of brain, is what we doctors call *anæmia*, or in other words, bloodlessness. The girls look pale about the lips, and have no rosy cheeks. This is manifestly most common in school-girls. Any one can see it. The next faulty bodily condition that may be caused by wrong methods of education is that of stunted growth. I have seen girls, the daughters of well-grown parents, who simply stopped growing too soon. They are more or less dwarfish specimens of their kind; this being caused, as I believe, by the vital and nervous force being appropriated by the mental part of the brain in learning its tasks; and the conditions of life in the schoolrooms not being good, the air bad, insufficient play-hours, no play-ground, no play-room, no walking in the fresh air and sunshine. I have seen other girls who grew tall enough, but wouldn't fatten. They remained thin and scrawny. Now, this is not what a woman should be at any age if it can be helped.

Public Health

"Health is the first Wealth."—*Emerson.*

NATIONAL WORK AND HEALTH.

(*Address delivered at the International Health Exhibition by Sir James Paget.*)

In his admirable address at the International Health Exhibition, in opening the work of the juries, Sir James James Paget said:—I think it may be made clear that this loss is so great that the consideration of it should add largely to the motives by which all people may be urged to the remedy of whatever unwholesome conditions they may live in. It is a subject which is often in the minds of the real students of the public health, but the public itself is far too little occupied with it.

In view of the national health and welfare, the pattern healthy man is one who lives long and vigorously; who in every part of his life, wherever and whatever it may be, does the largest amount of the best work that he can, and, when he dies, leaves healthy offspring. And we may regard that as the healthiest nation which produces, for the longest time and in proportion to its population, the largest number of such men as this, and which, in proportion to its natural and accumulated resources, can show the largest amount and greatest variety of good work.

Here let me insert, as an interpretation clause, that in all this and what is to follow the word "man" means also "woman," and "he" also means "she;" and that when I speak of work I mean not only manual or other muscular work, but work of whatever kind that can be regarded as a healthy part of the whole economy of the national life. And I shall take it for granted that a large portion of all national welfare is dependent on the work which the population can constantly be doing; or, if I may so express it, that the greater part of the national wealth is the income from the work which is the outcome from the national health.

It is a common expression that we do not know the value of a thing till we have lost it; and this may be applied to the losses of work which are due to the losses of national health. There are very few cases in which these can be estimated with any appearance of accuracy; but I am helped to the best within our present reach by Mr. Sutton, the Actuary to the Registry of Friendly Societies. In his office are the returns, for many years past, of the sickness and mortality among the members of a very large number of these societies; and, among other things, there is recorded the number of days on which each member, when "off work" on account of sickness, received money from his society. Hence Mr. Sutton can estimate, and this he has been so good as to do for me, the average number of days' sickness, and consequent loss of work among several hundred thousands of the workmen and others who are members of these societies. From the entire mass of these returns, he deduces that the average number of days' sickness, per member, per annum, is very nearly a week and a half; and this agrees, generally,

A Valuable Invention.—It is gratifying to learn that Mr. R. Adams, of 17, Blackman-street, London, S.E., whose fanlight-openers and silent door-springs are being extensively used, has received large orders for his Patent Reversible Window. The sashes, although they slide up and down in the usual way, can be instantly turned inside out, enabling anyone to clean each side of the glass with ease, while standing in the room.—[Advt.]

with the estimates made in other societies by Mr. Neison and others. But the averages thus obtained include the cases of members of all ages, and among them many cases of chronic sickness and inability to work during old age. In order, therefore, to get a better idea of the actual annual loss of work through sickness, he has taken the published experience of the members of the large group of Friendly Societies known as the Manchester Unity of Odd Fellows; and then, on the fair assumption that the rates of sickness of the whole population during the working years of life would not be far different, he has calculated the following tables, showing the average annual rates of sickness of each person, enumerated in the Census of 1881, as living between the ages of 15 and 65 :—

Ages.	Number of Males: Census of 1881 (England and Wales.)	Weeks' Sickness per annum, according to the experience of the Manchester Unity.	Average Sickness per individual per annum (in weeks).
15–20	1,268,269	844,428	·666
20–25	1,112,354	820,183	·737
25–45	3,239,432	3,224,134	·995
45–65	1,755,819	4,803,760	2·736
All ages from 15–65	7,375,874	9,692,505	1·314

Ages.	Number of Females: Census of 1881.	Weeks' Sickness per annum, according to the experience of the Manchester Unity.	Average Sickness per individual per annum (in weeks).
15–20	1,278,963	851,701	·666
20–25	1,215,872	896,685	·737
25–45	3,494,782	3,476,146	·995
45–65	1,951,713	5,368,229	2·751
All ages from 15–65	7,941,330	10,592,761	1·334

Briefly, it appears from these tables that the average time of sickness among the male population during the working years is a small fraction more than nine days each in each year, and that among the female population it is yet a small fraction more, the excess arising from the larger proportion of persons at the later ages. The result is that among males there is a loss of 9,692,505 weeks' work in every year, and among females a loss of 10,592,761 weeks. Thus we may believe that our whole population between fifteen and sixty-five years old do, in each year, 20,000,000 weeks' work less than they might do if it were not for sickness. The estimate is so large that it must, on first thoughts, seem improbable; but on fair consideration I believe it will not seem so. For the members of the Manchester Unity who are in the working time of life, the reckoning is certainly true, and it is founded on the experience of between 300,000 and 400,000 members. In respect of health they may represent the whole population at least as well as any group that could be taken. They are not very strictly selected, they are not picked lives, yet they are such as are able, when they are in health, to earn good wages or good salaries, and, as their prudence in joining this association shows, they are comparatively thrifty and careful persons. They do not, at all events, include many habitual drunkards, cripples, or utter invalids, or those who, through natural feebleness or early disease, or mere profligacy, cannot earn enough to become members or maintain themselves in membership. Neither do they include many of the insane or imbecile and idiotic, of whom there are, in our population, nearly 70,000 doing no work, and losing not less than 3,500,000 of weeks' work in the year.

Pure Water is such a vital necessity that, without it, illness is certain. None are more prone to the ill effects when impure than the young. To ensure a pure supply send a post-card to the London and General Water Purifying Company, Limited, 157, Strand, London, W C., who will return particulars post free.—[Advt.]

It would be tedious to tell the grounds on which the estimate may be deemed too high, for just as many and as good could be told on which it might be deemed too low. And it is rather more than confirmed by some estimates of the annual sickness in other and very different groups of persons.

In the Army, at home, the average number of days' sickness in each year is, for each soldier, about 17; and as the number of the troops in the United Kingdom is more than 80,000, we have here a loss of about 200,000 weeks' service in each year.

In the Navy, on the home stations, the average number of days' sickness in each year has been in the last five years for each man nearly 16; so that for the total of about 20,000 men there is a loss of 45,000 weeks' service in each year.

The amount of sickness in the services thus appears much higher than in the Friendly Societies. This is due, in great part, to the fact that a soldier or a sailor is often put off duty for a day or two for much less illness than that for which a civilian would "go on his club." Still, the one estimate may confirm the other; for the sickness in the Army and Navy is that of picked men, who were selected for the services as being of sound constitution, and who are in what should be the best working years of life, and if it includes many cases of sickness for only a day or two, it excludes nearly all cases of more than a few months, such as make up a heavy proportion of the average sickness in the Friendly Societies and in the general population.

And I may add that the estimate from these societies, that nine days in the year may justly be thought a fair estimate of the working time lost by sickness, is confirmed by the records of sickness among the 10,000 members of the Metropolitan Police Force; for among these, including cases of long illness, such as are also in the societies, the average is more than nine days in the year.

I think, then, that we cannot escape from the reasons to believe that we lose in England and Wales, every year, in consequence of sickness, 20,000,000 of weeks' work; or, say, as much work as 20,000,000 of healthy people would do in a week.

The number is not easily grasped by the mind. It is equal to about one-fortieth part of the work done in the year by the whole population between 15 and 65 years old. Or, try to think of it in money. Rather more than half of it is lost by those whom the Registrar-General names the domestic, the agricultural, and the industrial classes. These are rather more than seven millions and a half in number, and they lose about 11,000,000 of weeks; say, for easy reckoning, at a pound a week; and here is a loss of £11,000,000 sterling from what should be the annual wealth of the country. For the other classes, who are estimated as losing the other 9,000,000 weeks' work, it would be hard and unfair to make a guess at the loss in any known coin; for these include our great merchants, our judges and lawyers, and medical men, our statesmen and chief legislators; they include our poets, and writers of all kinds, musicians, painters, and philosophers; and our Princes, who certainly do more for the wealth and welfare of the country than can be told in money.

(*To be continued.*)

International Health Exhibition. — Eastern Gallery. — Why Burn Gas?—Adopt Chappuis' reflectors. They supersede gas in daytime, and promote health, comfort, and economy. They are now in great use in private houses. For prospectus address two stamps to (H.) Chappuis, patentee and manufacturer, 69, Fleet-street, London.—[Advt.]

Recreation and Health

"Health is the vital principle of bliss,
And Exercise of health."—*Thomson.*

HEALTH AND HOLIDAYS.

FOREIGN HEALTH-RESORTS.—II.

BY A PHYSICIAN.

Amélie-les-Bains.—This ancient thermal resort, founded somewhere about the time of the Romans, is situated in the Eastern Pyrenees, twenty-four miles from Perpignan. It is a small town of some eight hundred inhabitants, much frequented by invalids in the summer on account of its sulphur baths, but scarcely so well patronised in the winter as it might be, considering the advantages it offers. The climate during the winter months is exceedingly mild and equable; neither so irritating, on the one hand, as the air of Cannes or Nice, nor so relaxing as Pau or Arcachon. For this reason it has been found of much benefit in cases of consumption (particularly in the earlier stages) and catarrhal asthma. There are no less than seventeen mineral springs at Amélie-les-Bains, varying in temperature from 69° Fahr. to 140° Fahr., and three establishments. Administered internally, the Amélie-les-Bains waters prove very serviceable in many ailments connected with the nervous and digestive systems, while in the form of inhalations and baths, the stronger springs are successfully used in cases of rheumatism, scrofula, old sores, wounds, &c. Hotels: Thermes Romaines, Punjade. Fares from London *viâ* Paris and Toulouse to Narbonne and Perpignan, thence by coach to Amélie-les-Bains (about): 1st class, £7. 18s.; 2nd class, £5. 13s. The journey, however, will come considerably cheaper if, instead of going by Calais to Paris, the traveller takes the boat from Newhaven to Dieppe, and so on by Rouen.

Arcachon.—A watering-place on the west coast of France, in dept. Gironde, with a population of about 5,000. It is both a summer and winter station. In the summer it somewhat resembles our own Margate, being crowded with pleasure-seekers from the neighbouring town of Bordeaux. Unlike the majority of the health-resorts we have previously considered, Arcachon is not protected from the winds by surrounding hills or mountains, but it has something which, in its way, is much better—it has a huge pine forest. By this it is sheltered on three of its sides, while to the north of the town lies the great sea harbour or Basin d'Arcachon, the mouth of which is protected by a thin overhanging strip of land. In this way, the harbour is converted into what is practically an enclosed piece of water, extending over many miles. As affecting the climate of the town, it is certainly not without its advantages, for the north and north-easterly winds, which must necessarily pass over its surface, are thereby considerably impregnated with moisture, thus becoming deprived of the irritating dryness that would otherwise distinguish them, while at the same time they are rendered to a sensible degree warmer. The odour, too, arising from the forest, in consequence of the resinous exudations of the pine trees, proves very soothing in its effect to many invalids suffering from chest affections; and it is, moreover, like all forest air, particularly rich in ozone, or condensed oxygen. The winter quarter of Arcachon, the Ville d'Hiver, is actually embedded within this forest, each house or villa being surrounded by pine trees, while the summer portion—which the holiday-makers from Bordeaux, before spoken of, frequent—lies down by the harbour, the two being separated from one another by a high sandhill. The climate, being particularly mild and sedative, is very appropriate to certain forms of irritative bronchial or laryngeal catarrh, and in consumption, where there is a tendency to inflammation. The mean temperature for the whole year is 59 deg. Fahr.; for the winter, it is 46·4 deg. Fahr. on the sea-shore, and 50 deg. Fahr. in the forest. Hotels: Grand, Continental, Grand Hotel de France, Villa Peyronnet, Richelieu, Le Gallais. Fares from London, *viâ* Paris and Bordeaux: First class, £6. 3s.; second class, £4. 12s.; by steamer to Bordeaux (from London), £3 and £2; return, £5 and £3. 6s. 8d.; (from Liverpool), £5. 12s. 6d., £3. 6s. 8d., £2. 1s. 8d. Fares from Bordeaux to Arcachon: about 3s. 11½d., 2s. 11½d., 2s. 0½d.

Ax.—A thermal station in the Eastern Pyrenees, 2,500 ft. above the level of the sea. It has the largest supply of sulphur waters in Europe, numbering no fewer than fifty-three springs, their temperature varying from 60° to 90° Fahr. Only forty of these, however, are utilised, and they supply three establishments, the most important one being Le Teich. The cases for which the Ax waters are suitable are, amongst others, rheumatism, scrofula, certain catarrhal affections, such as bronchitis and asthma, and many forms of surgical disease. The accommodation at the various establishments is fairly good, but Ax itself is a very poor place, though prettily situated.

Baden-Baden.—A town of 12,000 inhabitants, situated in a beautiful valley thirty miles to the north-east of Strassburg, and chiefly visited on account of it social attractions. Baden-Baden, however, has other advantages. Not only is it an extremely fashionable, pleasure-loving town, replete with amusements of every kind, but it possesses a particularly mild, agreeable climate, while the waters, from the nature of their constituents, are calculated to do good in many forms of disease. There are in all thirteen mineral springs, and they contain, according to an analysis of Professor Bunsen, in addition to other chemical substances, carbonate of iron, the chlorides of sodium and lithium, and a very minute quantity of arsenic. Invalids that will derive greatest benefit from their use are those suffering from chronic rheumatism and gout, affections of the stomach and digestive system, and certain forms of skin disease. They are principally employed externally. As a summer resort more especially Baden-Baden is said to be very suitable for cases of disordered liver or spleen, the result of long residence in a tropical climate. The surrounding scenery is remarkably beautiful, and there are many places of interest to visit in the neighbourhood, while the other influences towards cheerfulness and anti-despondency that exist are unbounded. The season proper extends from May to the end of October. Hotels: Victoria, Hotel de France, Hotel de Hollande, Hotel de Russie, Hotel d'Angleterre, Court of Baden Hotel, &c. Fares from London (Victoria or Charing Cross) *viâ* Calais and Strassburg (about) £5. 4s., £3. 18s.

Bagnères de Bigorre.—A very interesting town of some 10,000 inhabitants, situated at the foot of the Pyrenees, thirteen miles from Tarbes, in the valley of the

POWNCEBY'S PURE WINES AND BRANDIES, as analysed, and especially selected to suit medicinal purposes, may be obtained in small quantities at wholesale prices. Free delivery within fifty miles. Circular and price current by post from POWNCEBY & Co., Wine and Brandy Importers, 183, Oxford-street London, W.—[ADVT.]

SCOTT'S MIDLOTHIAN OAT-FLOUR.—There is no preparation which can be assimilated with greater facility than such a flour as this. Those who suffer from indigestion might substitute for their ordinary breakfast materials this flour, prepared according to the recipe given by Messrs. Scott and printed on the tins.—ED. HEALTH.—[ADVT.]

Adour, at an altitude of 1,760 feet above sea level. It is celebrated for its mineral springs. Bagnères de Bigorre is well supplied with thermal establishments, of which there are fourteen, the largest and most important, the Marie-Thérèse, being the property of the town, while the remainder belong to private individuals. The Marie-Thérèse contains thirty-six bath-rooms, in every way admirably fitted up, and there are also included douche-rooms, vapour and public baths, and the usual *buvettes*, or drinking-fountains. The Bagnères waters vary very considerably in temperature, and according to their degree of warmth differ in their effects. Thus, the hottest springs are stimulating and exciting, whereas the tepid ones are sedative and, to a certain extent, weakening. The complaints for which they prove beneficial are chronic rheumatism, neuralgia, nervous dyspepsia, and corea, with those types of skin disease for which the stronger sulphurous waters would be contra-indicated, and they have also been found serviceable in many forms of lung complaint, either catarrhal or tubercular. For the latter class of patient, too, the climate during the summer months is very suitable—mean temperature about 64° Fahr.—but there is a very considerable difference between the temperature of the day and that of the night, the latter being subject to sudden variations of which the invalid should beware. There are several beautiful drives and interesting excursions to be taken by visitors in the neighbourhood, and the town itself offers many advantages for a pleasant stay. Hotels: Grand Hotel de Paris, Grand Hotel Beau Sejour, Hotel de France, Hotel de Londrès, &c. Fares: from London (Victoria), *vid* Calais, Bordeaux, and Tarbes, £7. 2s., £5. 6s. Visitors can also, if preferred, go to Bordeaux by steamer (see Arcachon), and thence by rail. The fares from Bordeaux to Bagnères de Bigorre (a distance of 146 miles), are 29s. 2d., 20s. 7½d., 15s. 1½d.

Poisonous Dyes.—Mr. Startin, of St. John's Hospital for Skin Diseases, shows, in the Eastern Quadrant of the Health Exhibition, a series of articles which have produced skin diseases through the injurious colours they contain. Speaking of these poisonous dyes, Mr. Startin says:—"During the last few years articles of dress, especially those worn next the skin, such as stockings, socks, gloves, drawers, &c., have been coloured with dyes derived from coal tar, amongst which are magentas, reds, violets, blues, and yellows of great beauty. And so long as they are worn externally they produce no impression save admiration, but their application to articles of dress such as named above, and worn in contact with the body, has shown that they are capable of producing irritation and eruptions of the skin, and in some instances constitutional disturbance. Many of these aniline dyes, as they are called, are derived from benzol and other products of coal tar, from which are obtained reds, blues, and magentas of great beauty, some of which, when brought into contact with the skin by means of the perspiration, act as powerful irritants, more in some instances than others. The dye is soluble in the perspiration, and hence it becomes absorbed into the skin. Some of the magenta dyes also contain arsenic, that compound being used in their preparation. It sometimes happens that the colour and pattern of the sock is transferred to the skin, and is represented by lines and figures of inflammation. This inflammation is sometimes propagated to different parts of the body in the same individual, and is often of a very severe and intense character, and still greater annoyance often results by reason of its recurrence after the skin has apparently recovered."

Jottings from the Journals

"Th' ingredients of health and long life are
Great temperance, open air,
Easy labour, little care."—*Sir Philip Sidney.*

Sore-Throat and Bad Plumbing.—Dr. G. Arthur Cardew, the Officer of Health of the Cheltenham, Eng., Military Training College, has recently published in the *British Medical Journal* some interesting notes on an epidemic of sore-throats which ran through that institution in the spring of 1882, and appears to have been connected with bad drainage. The first case was followed by thirty-four more, some very severe. The large number of the cases directed Dr. Cardew's attention to the sanitary condition of the buildings as the cause of the epidemic, and with the architect he made an inspection. The drains were in good condition, but the soil-pipes were old, much corroded and pinholed, and without ventilation. A cistern overflowed directly into one of the soil-pipes, without even a trap. The pipes from the lavatories were in direct communication with the drains, and were half filled with black, muddy deposit. The ventilation of the building was defective, and the dormitories and class-rooms were very foul. Dr. Cardew suggests that there was a connection between this state of the drainage and ventilation and the epidemic. —*Sanitary Engineer.*

* * *

Influence of Feeding on the Milk of Cows.—M. Ch. Girard has presented to the Société de Médecine Publique et d'Hygiéne Professionnelle, in Paris, a memoir on the influence of alimentation on cow's milk. According to M. Girard, the best food for milch cows is green food. A diet of brewers' grains affects the milk injuriously, especially when it is used exclusively, or in too large a proportion, the toxic principle may be absorbed and pass into the milk. All substances containing any noxious principle, germ, micro-organism, or poison hurtful to the blood should be carefully excluded from the food of milch cows. M. Girard suggests that the Administration should organise model stables, where milch cows would be surrounded by the best hygienic conditions, and fed on carefully-chosen food. Newborn infants would thus be supplied with good milk, presenting always the same proportion of its component parts.

* * *

Germs at Sea.—In a leading article published in our first volume for 1883, p. 643, we drew attention to some valuable and industrious work done by M. Pouchet on the subject of germs in the atmosphere of and about large cities. It has generally been thought, and direct observation has confirmed the notion, that the air above the sea is singularly free from the low forms of organic life. MM. Moreau and Plantymansion have taken advantage of their leisure during a voyage in the *Gironde* from Rio de Janeiro to Bordeaux to obtain some data bearing on this question. They have found that over the open sea, at a distance from the vessel, the air contained very little solid matter. The land breezes appear to become rapidly free from the multitude of organisms which they carry with them from populous districts. M. Miguel, of the Montsouris Observatory, regards the fall of germs into the sea as a reassuring fact; breezes blowing from distant continents, which might otherwise bring epidemics with them become purified, it is supposed, in crossing the ocean. The gentlemen above-named have found that the atmosphere immediately about the vessel practically swarmed with micro-organisms; the vessel seemed to be surrounded by "an atmosphere of microbes."—*Lancet.*

Artisans' Dwellings: Inquiry in Birmingham.—The Special Committee appointed by the Town Council of Birmingham to inquire how far the dwelling-house accommodation for the artisan and labouring classes in the borough is sanitary and adequate, and the amelioration, if any, that it is in the power of the Council to effect, have published their report. The points to which the Committee were specially enjoined to direct their attention were, first, as to the sufficiency of the existing dwelling-house accommodation for the classes in question; secondly, as to its sanitary condition; and, thirdly, the amelioration which it was in the power of the Town Council to effect. As the result of their labours, in the course of which forty-one persons were examined, and many houses and localities personally inspected by the Committee, they are able to make so favourable a report on the first two points, that it is not very surprising that their answer to the third, which suggests the remedies, should savour somewhat of commonplace and weakness. With regard, in the first place, to the sufficiency of the accommodation, they find that there is at present an average of nearly 8 per cent. of suitable houses void, and that these are pretty evenly distributed through all the wards; and they have, therefore, come to the conclusion that there is adequate dwelling-house accommodation for the artisan and labouring classes within the borough. The sanitary condition of the houses proved to be a more difficult problem; but although the committee were convinced of the existence still of a good many dilapidated, unsound, and unsanitary dwellings, the general sanitary condition of the houses appeared to be satisfactory, and the "overcrowding does not exist to any great extent." As to the amelioration which it is in the power of the Town Council to effect, the committee have agreed on the following recommendations:—"1. That all new houses should be certified by some competent official before the same are allowed to be inhabited. 2. That extreme care should be exercised by the building surveyor in the supervision of the materials used in the construction of houses. 3. That the staircases of new houses should be better constructed. 4. That the Corporation should employ scavengers and whitewashers to cleanse the worst courts occasionally. 5. That it is very desirable that all courts should be lighted. 6. That more suitable closet accommodation should be provided for children. 7. That single houses should be thoroughly stripped, papered, and limewashed, at least once in two years, and others once in three years. 8. That cheap trains and tramcars should be run to and from the suburbs. 9. That it is desirable that some model dwellings for the working classes should be erected by private enterprise.—*British Medical Journal.*

* * *

Badly-Ventilated Shops.—In one essential feature the majority of machine-shops in this country—perhaps in all countries—are lacking. That is, they are improperly ventilated. One is often struck, upon going from the open air to a busy shop, with a sense of the unhealthy condition of the air, charged with metallic dust, which workmen must breathe over and over. Workmen cannot do justice to themselves in such an atmosphere, and it is not only a question of health to them, but as well one of profit to the employer, to provide for its systematic removal. From the character of the work done in machine-shops, especially where considerable cast-iron is worked, good ventilation is very important, and ought to receive more attention.—*American Machinist.*

THE "BONCONTOUR" STAY-BELT and other Orthopædic Apparatus, made by K. R. SCHRAMM, Orthopædic Mechanician, 64, Belmont-street, Chalk Farm-road, London, N.W.—[ADVT.]

Our Bookshelf

"Reading maketh a full man."—*Bacon.*

LITERARY JOTTINGS.

MANUALS OF HEALTH.—(1) *The Habitation in Relation to Health.* By F. S. B. DE CHAUMONT, M.D., F.R.S. (2) *Water, Air, and Disinfectants.* By W. NOEL HARTLEY, F.R.S.E., F.C.S. (3) *Food.* By ALBERT J. BERNAYS, Ph.D., F.C.S. (London: The Society for Promoting Christian Knowledge.)—These three manuals, each costing one shilling, may be said to represent typical examples of what health-primers intended for the instruction and edification of the masses should be. They form three of a series, including volumes dealing with all the prominent phases of hygiene in its relation to personal and public well-being; and we are glad to be able to bring so excellent a series of manuals under the notice of the readers of HEALTH. The information dispensed in their pages is always reliable, and this is saying a great deal in these latter days, when the anxiety to popularise the truths of science often leads to the sacrifice of accuracy and correctness in stating scientific details in everyday language. Dr. de Chaumont's primer is a model in its way, and deals tersely with all the topics likely to interest the householder in his desire to protect his domicile against the unseen foes that lurk around. Dr. Bernays treats of "Food" from a chemical standpoint, and contrives to include within the 117 pages of which his primer consists a large amount of interesting details concerning food-stuffs of all kinds. Mr. Hartley's volume on air and water is likewise written in a popular vein, and contains much information likely to be of high service to all interested in the preservation of health. Altogether, the series of manuals of which these volumes form part has few rivals, and certainly no superiors, in the list of educational works recently issued from the press.

Pharmacopœia of the Victoria Hospital for Children (Chelsea and Margate). (London: J. & A. Churchill, 1884.)—This is a handy little volume, likely to be of service to all who have professionally to treat the diseases of children. A useful appendix on "How to Manage Infants" is included in the volume, along with a "Diet Table."

The London Water Supply, Past, Present, and Future. By G. PHILLIPS BEVAN, F.S.S. With a Map. (London: E. Stanford. 1884.)—At the present time, Mr. Bevan's pamphlet should receive attention, if for no other reason than that it contains a very full and complete account of the sources from which London draws its supply of water. The chapters which will possess the greatest interest, perhaps, for the Londoner, are those in which the author deals with the future and increase of the water supply. Here, Mr. Bevan details clearly the various schemes which, from time to time, have been proposed to meet the exigencies of the increasing demands made upon existing sources of supply. Mr. Bevan thinks the London Water Companies "as business firms, have only acted like every business firm in London, viz., got the best prices for their wares, and made the best bargains possible." This is, no doubt, true; but recent proceedings by aggrieved ratepayers in the London police-courts would seem to show that there exists difference of opinion regarding the proper limits of the "bargaining" and of the dealings with their customers which the water companies have of late exhibited. Mr.

Dobbs' litigation, referred to by Mr. Bevan, illustrates in our opinion, a justifiable enough exercise of public criticism and action in connection with the cost of the water-supply. Mr. Bevan's table (p. 82) shows "the average cost per house of the water-supply of all the companies in the years 1820 and 1879"; and his figures may be commended to the London ratepayers as offering food for reflection :—

Company.	1820.		1879.
New River	25s.	.....	61s. 3d.
Chelsea	35s.	.....	66s. 0d.
West Middlesex	47s.	.....	61s. 6d.
Lambeth	16s.	.....	50s. 9d.
Southwark and Vauxhall	—	.....	40s. 9d.
East London	22s.	.....	34s. 7d.
Kent	—	.....	38s. 2d.
Grand Junction	57s.	.....	68s. 0d.

Mr. Bevan's pamphlet may be commended as a trustworthy guide, and an interesting one withal, to a knowledge of the London water supply.

A Dozen Papers Relating to Disease-Prevention. (Illustrated.) By Cornelius B. Fox, M.D., F.R.C.P., &c. (London: J. & A. Churchill, 1884.)—Dr. Fox, whose labours as a sanitarian are so well known, has collected into this handy volume a series of detached papers on sanitary subjects. The result of this compilation has been the production of a highly-interesting little manual, teeming with the results of a long experience in hygienic science and practice. The introductory paper, dealing with the necessity for independence on the part of Medical Officers of Health, sounds a note of warning against the handicapping of official earnestness by private and allied considerations. We imagine no one will deny that the medical officer of any district should be utterly free, independent, and unfettered in his action. Yet Dr. Fox's words are none the less required as a warning against the often lamentable results of allowing private practice and pecuniary considerations to interfere with the condemnation of nuisances and the free discharge of public duties. The Health Officer, after all, will only be bettered in his position by advance in the public culture of health. The papers on "Coke as a Fuel," on "The Supply of Rain-Water to Cottages in Rural Districts," and on "The Pollution of Rivers," will bear careful perusal. In the article entitled "Is Enteric (or Typhoid) Fever ever Spontaneously Generated?" Dr. Fox shows the difficulties which may be met with in tracing the disease to the ordinary sources of water-pollution, although himself leaning to the idea that this fever, like every other, always springs from pre-existing fever germs. A paper on the spread of infectious diseases by tradespeople is well worth the attention of shopkeepers and others. The author here shows how various fevers have been spread by the carelessness and ignorance of persons neglecting to take precautions to prevent infection in those with whom they come into business relations. "How to Keep the External Ear in a Healthy State" is a paper showing that the care of the ear-passages is an easy matter, but one involving and necessitating care. The concluding article of Dr. Fox's book deals with copper-poisoning, produced by the use of an electro-plated drinking-flask. This is a danger often unrecognised, but liable to occur; and one of which it is therefore well that the public should be warned. "My *ménage*," says Dr. Fox, "contains a very ancient copper stewing-pan, on the handle of which are the words 'Ye Wages of Sin is Death'—a quotation which is applicable in a manner never intended by the maker, who did not possess the knowledge that we enjoy as regards the retribution incurred by those who, in spite of repeated warnings, persist in cooking their food in copper vessels." Dr. Fox's volume, besides being instructive, is so interesting that its perusal will be enjoyed by all whether sanitarians or not.

A Manual for Hospital Nurses and others engaged in Attending on the Sick. By Edward J. Domville, L.R.C.P., M.R.C.S.E. Fourth edition. (London: J. & A. Churchill.)—This is an excellent manual, clearly written, admirably expressed, and well arranged in all its details. For the public or private nurse this book should serve as a complete *vade mecum*. There is no manual we have yet seen which excels this handy-book in the excellence of its arrangement and accuracy. Mothers and heads of families might very appropriately add this work to the contents of their bookshelf. It is calculated to be highly useful in the treatment of emergencies of all kinds.

In Sunny Switzerland: A Story of Six Weeks. By Rowland Grey. (London: Kegan, Paul, & Co. 1884.)—Healthy fiction is doubtless an aid to physical well-being, as its reverse is calculated to unstring the mind and to pander to the less desirable emotions. The story told in this volume is by no means of a startling kind, but its details are well wrought out, and, as a picture of ordinary life and character, it is to be commended for its interesting nature. The author has contented himself with details which have by no means overtaxed his powers. With greater experience in the delineation of incident and in the analysis of character, the writer is wellnigh certain to produce excellent work in fiction. As it is, the story he tells is bright and pleasant, and is well calculated to amuse a leisure hour or two.

Death and Disease Behind the Counter. By Thomas Sutherst, Barrister-at-Law, President of the Shop Hours Labour League. (London: Kegan Paul, Trench, & Co. 1884.)—This is, in more ways than one, a remarkable book. It exhibits a spirit of the highest philanthropy in its compilation, and its preparation must have involved an immense amount of time and careful labour. Its appearance at the present time, when the health of shop-assistants is forming a subject of Parliamentary concern, is of opportune kind. Mr. Sutherst has contrived to make out an irrefragable case for the shortening of hours of labour, and for the rational regulation of the work of those engaged in shops and warehouses. It is no new tale this, to the telling of which Mr. Sutherst devotes himself. He has amassed and printed in the pages before us an immense amount of evidence, lay and medical, showing the incalculable injury to health which long hours, insufficient rest and recreation, bad or insufficient food, and lack of time for meals are certain to produce. All this is an old old story, no doubt, but it has never been so graphically and clearly told, or so emphatically set forth, as in the pages of this volume. Mr. Sutherst has drafted a Bill, given at p. 73 of this book, and called the "Shop Hours' Regulation Bill." Of this measure, Sir John Lubbock has taken charge, and as far as we can see, the provisions contained in the Bill are both necessary and reasonable in their nature. All policy which interferes with the health of *employés* is of suicidal nature in the long run. There are many interests involved, no doubt, in questions relating to hours of labour; but there can be no justification for any system of "social sweating," which is calculated to ruin the health, of body and mind alike, of those engaged in any work. Masters may, and very possibly will, complain of the terms of Mr. Sutherst's proposed legislation; but such criticism will be ineffectual, provided it can be demonstrated, as it certainly can and will be shown, that many of the existing modes of doing business are fraught with the greatest injury to the health of workers. No master worthy the name will consent to prosper on the ill-health and physically ruined frames of those he employs.

Sanitary Appliances, Etc.

THYMO-CRESOL—A NEW DISINFECTANT.

WE have received from Messrs. Ness & Co., of Darlington, samples of their "Thymo-Cresol," one of the tar compounds, and an agent likely to come into high favour as a disinfectant. From a series of tests to which we have subjected the samples sent us, we have formed a high opinion of the efficacy of this agent. In a fluid state, and when largely diluted with water, it preserves meat and other substances from decay; and we have been struck with the rapidity with which it acted on substances giving off a highly disagreeable odour; the effect of the application of a solution of this substance being most noticeable in that the odour in question was not revived after a lengthened period, during which no fresh application of the disinfectant had been made. We anticipate for "Thymo-Cresol" an important position among the list of disinfecting and antiseptic agencies. We think a series of experiments, undertaken to test its exact and comparative germicidal properties, would reveal a high efficacy in this direction, judging from what we have witnessed in the case of its application to ordinary disinfecting purposes. The fluid is susceptible of large dilution with water, and, on this account, it may be recommended as an agent suitable for use by corporations and similar bodies in scavenging and street-watering operations in summer. Such dilution does not destroy the efficacy of this substance for such purposes, and it is this power of preserving its qualities, after dilution, which constitutes the claim of this agent to the favourable notice of all interested in the topic of disinfectants. A powder, containing this substance, is also sold for the use of householders and others as an application to closets and drains.

FARNWORTH'S "FOODS FOR HEALTH."

FROM Mr. Farnworth, of 26, Drury-lane, Liverpool, we have received samples of the "Waverley Oatmeal" and the "Golden Grain Wheatmeal," manufactured by him. After a careful examination of the oatmeal—which is made in three qualities, "pin-head," "medium," and "fine"—we are able to bear testimony to the purity of this preparation, and to its freedom from all extraneous products. It is a carefully-prepared oatmeal, eminently suited for the nutrition of children in respect of its bone-forming qualities, as well as for the dietetic improvement of adults. For tricyclists we should strongly recommend this oatmeal. A tin of this substance, carried in the tricycle bag, and a little of the oatmeal added to water, are expedients which make the tricyclist independent, during a long day's ride, of every other fare.

The "Wheatmeal" manufactured by Mr. Farnworth is supplied decorticated and granulated. The former process deprives the meal of any parts likely to be irritable to the mucous surface of the digestive canal—a serious objection to such meals as commonly prepared. For making brown bread this meal is well adapted, while in many other forms—for example, as a material for breakfast or supper for those suffering from dyspepsia—it is very suitable, nutritious, and pleasant to the taste.

MM. MIGNON AND TOUARD, who established the refrigerating service at the Paris Morgue, have made experiments with their system on hams infected with trichinæ, and are stated to have proved that they are rendered wholly innocuous by exposure during an hour to a cold of 20° C. It will be proposed for the protection of consumers to render exposure obligatory in the case of importations from America or Germany.

NATIONAL TEMPERANCE HOLIDAY.—The second great *fête* of the Church of England Temperance Society is arranged to be held at the National Health Exhibition and Albert Hall, on Saturday, July 19, 1884, and promises to be one of the principal events of the season. In addition to two grand concerts by 1,000 singers each, a great evening mass meeting will be held in the Albert Hall. A special conference will also be arranged for during the day, and there will be extra and special attractions for all-comers. Admission to the Exhibition, Albert Hall, and Grounds will be one shilling.

Our Letter : Box

"Conference [maketh] a ready man."—*Bacon.*

LETTERS TO THE EDITOR.

CREMATION.

SIR,—There is one very important point that does not seem to be made so much of as it merits, and that is the horrible danger we encounter of being buried alive, if interred in the usual barbarous way.

That people have been buried alive is an undoubted fact; and, where one case is discovered, there are certainly thousands not discovered. It is not one body in millions that is ever exhumed, and as in this small percentage there have been found certain cases of burial alive, it is open to no dispute that there must have been hundreds, nay thousands, of wretched victims entombed alive. Only the other day, in Wales, a case was reported in the *Lancet*, where a lady—in a vault opened after many years—had forced the lid of the coffin half open and put forth an arm and a leg in her wild efforts to free herself, but was unable perfectly to do so, and thus must have lingered on until real death, at last, relieved her of her anxious suffering. There are scores of similar cases that have been vouched for—how many more, then, of the countless millions buried have there been that the dank grave earth alone has witnessed?

Imagine the horror of gradually awakening in the coffin—to feel the arms held in at the sides, and the lid almost touching the face. To realise that you are in a coffin, unable even to turn round, in a deep grave, that no mortal ear can hear the muffled shriek of direst agony; to lie there, tied down more tightly than on a rack, and to suffer mental agonies far surpassing anything that could possibly be above ground; and to stifle at last, after what would seem an age of acutest sensations—the mere idea is appalling.

Let us, then, throw off the hideous ties of the barbarous past, and let us incinerate our beloved rather than let them risk such a fearsome awakening in the grave. No one knows, besides, when a death-like trance may seize him.—I am, yours, &c.,

BURIED ALIVE.

HEAVY GAS BILLS.

174, Fleet-street, London, E.C.

SIR,—In connection with the cry of "heavy gas bills," we beg to point out to you that so long as there is an increased demand for gas for heating and cooking purposes as well as for motive power, so long will the companies put an increased pressure to supply that demand.

An increase in the pressure means increased gas bills, unless you take the advice of the secretary of the Gas Light & Coke Co., as recorded in the *Pall Mall Gazette* of May 19th, where he says: "First let them turn down the main cock at the meter, and if they want a SURER REMEDY, let them apply a governor. The first clause gives a possible remedy, the second a certain remedy."

Mr. Robert Wilson, M.I.C.E., writing to the *Pall Mall Gazette* on the same date, says in order to obtain the greatest illuminating effect from gas it should never be burned at a pressure exceeding eight-tenths of an inch, while it is well known the pressure in the street mains varies from ten to forty tenths. How, then, can the pressure be reduced from twenty to eight tenths? By throttling the gas at the meter or at the burner, or both. The throttling can best be done automatically by applying at the meter a reliable gas governor or regulator.

Now, sir, in addition to the above authorities we could give you quotations to the same effect from hundreds of scientific witnesses as well as thousands of gas-consumers whose observations have led them to the same conclusion, that nothing but an automatic governor can prevent excess of gas bills.

The "Stott" governor, we venture to say, is the most reliable governor in the market, having, in competition with all other makers, taken thirty-one highest awards in five years. It is perfectly automatic in its action, and it is not affected by the quality of gas.

It is constructed of imperishable materials, has neither hinges, levers, nor springs, and, as an eminent authority has said, its first cost is its only cost, as there is nothing in its construction to get out of order, or even need repairing.

No increase of pressure in the street mains can in the slightest degree increase the pressure at the point of ignition.

Thus the public can be insured against hissing and glaring lights, against the cracking of globes or shades, and against excessive heat and noxious gases which float about the room to the detriment of health

and injury of pictures and furniture where there is an uncontrolled pressure, and as the quarter comes round you have the pleasure of knowing that you are only charged for the gas you have consumed, which, in the majority of cases, is 25 per cent. less than previous accounts where the "Stott" governor is in use.—We remain, dear sir, yours truly, James Stott & Co.

June 27.

QUERIES AND ANSWERS.

We would direct the attention of our correspondents to the fact that, owing to the necessity for sending Health to press early in the week, answers to queries cannot, as a rule, appear in the succeeding number of the journal. Every effort is made to secure punctuality in the replies, but we must ask the occasional indulgence of our readers, owing to the large amount of correspondence, which requires assortment and reply.

We must also request correspondents who write enclosing stamps for copies of Health, to address their inquiries to the Publisher, *and not to the Editor.*

We beg to announce to our correspondents that, save in exceptional cases, or where addresses of medical men, &c., are desired, we cannot reply to inquiries by letter.]

GENERAL.

Caledon.—Not at present. In a week or two, perhaps.

X. O.—See No. 45. There is an article on the subject in that number.

George Prain.—About 80 or 100—not more.

Manchester Student.—Thanks for your communication and enclosure. We had noticed the case, but as it has been well ventilated in the newspapers it is needless to refer further to it here.

A. C. P.—The examinations are three in number and two respectively.

Alexis.—Not suitable for Health; many thanks for offer.

Pauline. You will find the passage in Abercrombie's "Intellectual Powers," and in Carpenter's "Mental Physiology."

Zenic.—Rapidity varies from 100 to 120 feet or so per second.

Agamemnon.—1. About 22 per cent. 2. We have not heard of the experiment you name. 3. Not nearly so much. 4. Quite safe.

G. A. N.—Send the MS., by all means.

X.—Yes; we have noted the topic for treatment.

Jennie.—1. Dangerous to use. A pure powder is the Sanitary Rose Toilet Powder, and that of Messrs. Cleaver is also pure. 2. There is no such harmless colour.

A Student of Hygiene.—Parke's "Hygiene" is the book you require.

B. Bishop.—Consult Messrs. W. & A. Blackwood's (of Edinburgh) catalogue of publications for works on agriculture. Johnston's "Chemistry" might suit you. Professer Tanner, we believe, has also published a book on "Agricultural Chemistry." Consult also the list of Messrs. W. & A. Collin's publications.

Weekly Reader.—Thanks for cutting. The remedy named does not appear to differ in nature from the ordinary treatment by cauterising the wound.

SANITARY.

Butcher.—Yes; Dr. Saunder's "Chemical Bath" is used in London to destroy putrid meat. The bath consists of Cooper's Salts, sulphate of iron, picric acid, and water.

Meteorologist.—You refer to the investigations of Dr. Arthur Mitchell and Mr. A. Buchan on the weather and disease. See a lecture by the latter, delivered at the Royal Institution last year.

John C.—Use Calvert's No. 5 Solution in the case you mention.

Axle.—About 160 grains carbon are excreted by an adult man per hour. This will give you a basis for your calculations.

Sherborne.—Try boiling, as a first measure.

A. S. O.—Precipitation by lime is not now regarded with favour as a means for purifying sewage.

MEDICAL.

Lochiel.—Take the lime powders prescribed to "T. H." in Health No. 64, for face pimples. Any child is liable to bring out such eruptions in the skin. Your cousin should avoid bathing so frequently. It is probable he is over-worked and mentally worried—hence the talking during sleep.

H. Shibley.—1. No; not ill in any sense. 2. Slightly, if at all. 3. Yes. Attend to general health; don't overdo your exercise; occupy your mind with cheerful thoughts; and for the rest see advice given to "Eton" in Health No. 63.

Colleen Bawn.—We have never heard of the "Lait" you name. What you require is rest, freedom from the mental worry you name (always a source of thinness and spareness), and nourishing food. We think you should take cod-liver oil, or the emulsion (a dessert spoonful after food), and ten drops of *Fer Bravais* in water thrice daily between meals. This treatment will probably remove the "lumps" you complain of.

Passionate Entreaty.—Don't be nervous or morbid. You have no need or reason to be excited. Read and follow advice to "Espérer," in Health, No. 64, and to "Eton," in No. 63, and you will get quite well in time. Glad to assist further, if need be; but your cure lies with yourself, and in exercising mental cheerfulness, and the plain rules for health above alluded to.

D. F. F.—Thanks for your good wishes. Our advice to you is to give up all night work with your eyes for a time, and simply to apply cold water night and morning to them with an ordinary "eye-glass." See to the ventilation of your room, and avoid hot, close apartments. Smear a little vaseline on the lids at night. glad to advise again if necessary.

Mac.—No; it would not be suitable for a trouble which is of a digestive nature. Avoid vegetables, and rest after food, and take a little Pepsine after meals. Glycerine is often prescribed in place of cod-liver oil in cases of wasting disease. It will do you no harm in any case.

Sociable.—Moderate your food, which should be light. Avoid tea and coffee, and don't eat late at night. Try cold sponging (if you have sufficient reaction) in the mornings. Of course, your cure must be mental as well as physical, and you must not allow your mind to dwell on troubles, which will soon disappear by attention to health rules.

Leonard Boyne.—See advice to "Sociable" above. Write again if not better. Try a little Æsculap water in the mornings as an aid to digestive action.

Gilbert James.—A little oatmeal dissolved in cold water and made into a thin gruel is a capital sustaining beverage for tricyclists. Oatmeal added to milk and water is also good. Some tricyclists prefer claret and water, others soda and milk, and so on. Individual tastes differ, but we believe the oatmeal drink is the best.

Margaux.—You are drinking too much coffee and tea, for one thing, and your occupation keeps you on your feet for too prolonged periods for another. Try to do with less coffee and tea—give up both, if possible, and substitute milk for them. The heart-burn is caused in all probability by the coffee and tea. Rest after food is also necessary in your case. Glad to be of any further service. You require no medicines—only dietetic treatment.

T. E. S.—You must surely be mistaken in naming your ailment as you do. From your note we do not gather that you suffer from any such affection. See and follow advice to "Eton," in Health No. 63; and, of course, see that you supervise your health in every way.

X + Y.—(1) Not unless of very pronounced character. Of the latter a surgeon would be the only safe judge. (2) Operation and healing would require from a week to ten days. (3) Rest in bed is needful after operation. (4) No, not dangerous. (5) A skilled surgeon should be consulted, as the operation requires dexterity. Glad to send address of such a surgeon if required, on receipt of stamped addressed envelope.

J. M. McC.—See and follow advice to "Espérer," in Health No. 64.

Classicus.—Yours is a not uncommon case of mental overwork, leaving effects which have, of course, been intensified by the typhoid fever. We think we are discharging our duty to you most effectually by advising you to undergo a thorough examination now, by a competent physician. Such an examination may be able to detect a cause for your languor, which we are fully of opinion will pass away after further rest. Tonics, without rest and a pure air can do no good. If desired, we can send you address of a physician on receipt of stamped addressed envelope. You might peruse Dr. Althaus's little book on "Brain Troubles" (Longmans) (reviewed in Vol. I., Health) with advantage. Your diet should be light but nutritious. Vegetarianism would not, in our opinion, suit you.

Nero.—Try the lime powders recommended and follow the advice given to "J. E. Carter," in Health No. 63.

Nil Desperandum.—Describe fully what you mean by the "worms" in question, and we will endeavour to advise you. Do you mean "thread-worms"?

Oceola.—Avoid using the eyes at night in reading, &c., for a prolonged period. Bathe frequently with cold water, and take ten drops *Fer Bravais* in water, thrice daily, for a time, between meals.

Göttingen.—It looks as though you had imbibed some malarious poison abroad. You are apparently now throwing off the trouble,

which, as it is increased in damp weather, points to some such poison as we have indicated. Good living, in a dry climate, is our recommendation to you, and the use of a teaspoonful of Fellows' Syrup of the Hypophosphites in a wineglass of water, thrice daily an hour before meals, as a tonic restorative.

IN DESPAIR.—See and follow advice to "Eton" in HEALTH No. 63.

P. C. C.—The gentleman you name is a duly-qualified medical practitioner. You suffer from "acne." Press out the "blackheads" from the skin, and thereafter use brisk friction to the skin with a hard towel and sponge toilet vinegar or eau-de-cologne on the skin. Avoid chills, attend to the general health, and see that the skin is made to act thoroughly by hot baths, &c.

G. C. WAYLING.—(1) The wash you send is certainly not good to use; we may add, however, that we cannot undertake to give a chemical analysis such as you evidently require to fully answer your query. (2) Any chemist will procure for you the Cascara-bark "cordial" or other preparation of the bark.

H. E. B.—Your queries are rather numerous for a single communication. Here are the only replies we can give you here. (1) Depends entirely on extent and causes. (2) Yes; only another term is more common. (3) Yes; it is a possible, but not at all common, affection (much exaggerated by quacks, of course). (4) Yes; perfectly possible by a microscopic examination. What you have been told on this latter head is correct enough. (5) Varies with the individual—no fixed rule for health. 6. Ditto. Time you name is too short, certainly. 7. You are wrongly informed on the last point. What you name is often natural enough.

S. H. D.—It is perfectly clear that in the case you name there is much mental overwork, and probably physical overwork as well. Rest and fresh air are clearly required, and unless these conditions are complied with, no other means of health-restoration are of use. To work from nine till eight is, in itself, a piece of folly. No human organisation can stand this strain. The want of a holiday may cost the patient dear. Be wise in time.

ANCHOR.—For a scurf cure, see advice to "Barnum," HEALTH No. 64.

HEALTH-INQUIRER.—1. Try the hair-lotion recommended to "Barum" in HEALTH No. 64. 2. The "Health Primers" of the Society for Promoting Christian Knowledge include cheap manuals, which will suit you admirably.

ROSE E. RAYMOND.—It is possible that the cold bath may have been the cause of your troubles. We should say, attend to your general health. Rest is necessary, also attention to diet. A vegetable dietary should certainly be tried by you, as a corrective to indigestion. If not bettered, a thorough medical examination, by a physician accustomed to treat such complaints, should be undergone.

M. S.—There must be some constitutional cause for the ailment you name. We think in such a case you are safest in obtaining the advice of a competent London physician. Such an opinion will doubly relieve your mind. If desired, we can send you address of such a physician on receipt of a stamped-addressed envelope.

M. U. G.—Continue to wear a suspensory bandage—procure a proper one—and avoid all violent exercise. Rest as much as possible, and use cold sponging each morning. Write again, in event of your being troubled.

C. MILLER.—See advice to "Barum," in HEALTH No. 64.

IGNORAMUS.—See to your digestion; and if the cold bath does not completely agree with you, try it slightly tepid. Take a little Pepsine after your meals, and avoid constipation above all.

SUNNYSIDE.—You suffer from accumulation of wax. Have the ear carefully syringed with tepid water, and place a drop or two of glycerine in the ear at night. This will probably cure you. For the gland-trouble take the *Fer Bravais* as recommended to "Oceola" in present number of HEALTH. A holiday by the sea will benefit the latter complaint.

JUVENIS.—Glad to hear a vegetarian dietary has benefited you.

NEWPORT.—1. Both classes of appliances are genuine, and either would be useful in your case, and might be tried. The last-named is comfortable to wear. A tonic (such as Fellows' Syrup of the Hypophosphites) acts in many cases with efficacy. 2. Eggs are highly nutritious. In the form of egg-flip (such as you name) they are light and readily digested.

J.—No harm whatever. Morson's Pepsine is a genuine preparation, and is used with much benefit in cases of dyspepsia.

J. E. T.—[Thanks for your note, and for correction. At Dr. Renner's Establishment, Marylebone-road, calf-vaccination is practised.] 1. There is no need for any measures beyond general care of health. 2. See to your digestion, avoid constipation, and give up suppers. A little Æsculap Water in the morning will benefit you. 3. Wash the feet nightly, change your socks frequently, and sleep in stockings. 4. Avoid chills, and use tepid soft water for washing. 5. Your smoking may be the cause of your ailments. Give abstinence a trial. 6. See advice No. 2 above.

C. MORTON.—Simply attend to your general health, and give up drugs which you certainly don't require. Continue cold sponging each morning; sleep on a hard mattress; avoid fluids late at night, and let your food be light. Moderate exercise is necessary.

A LANCASHIRE LAD.—Undergo a thorough medical examination by a competent physician. Your symptoms indicate some nervous ailment, probably slight in its nature, but which demands a physician's opinion. We can send you address of a reliable London physician, if desired, on receipt of stamped, addressed envelope.

LIBER.—Glad to hear our advice has been so beneficial. There is no need to be alarmed at what you name. The secretion is entirely harmless, and will disappear when you succeed in overcoming your constipation. Try a vegetable diet, eat plenty of fruit to your dinner and breakfast, as a rational cure, and avoid aperients.

RAB.—Let your friend beware of the Liverpool quacks whose circular you enclose. They are well known impostors and charlatans, and their procedure is that of ordinary quacks. Direct him to follow advice given to "Eton," in HEALTH No. 63.

GOATFELL.—Attend to your digestion in the first place. Take Pepsine with your food for a time, and let your diet be very light. Rest after meals is absolutely necessary in your case. Avoid constipation especially by eating fruits, &c. A little iron as a tonic (*e.g.*, that recommended to "Oceola" in present number of HEALTH) would benefit you immensely. Let us hear from you after a trial of this advice.

WEERDE-LES-MALINES.—No special treatment needed beyond attention to diet, which should be light, and avoidance of constipation especially. Write to the Association for the Supply of Pure Vaccine Lymph, Hemming's-row, St. Martin's-lane, London, W.C., for tubes of vaccine lymph, and you will receive full directions for self-vaccination with this pure lymph. The tubes cost 2s. each. Glad to be of service to you at all times.

W. M. K.—Is it tincture of iodine with which your joints are painted? The tincture is of a dark brown colour. Try hot salt-water (use Tidman's Sea Salt dissolved in hot water) applied to the affected parts; and when the pain is severe, rub carefully, a little chloroform liniment or Bow's Liniment on the parts.

R. RICHARDSON.—Nothing is required save strict cleanliness. Wash twice daily with Calvert's Carbolic Soap, and apply a little pure vaseline thereafter.

RUFUS.—1. The wisdom-teeth are often long delayed. It is the opinion of many scientists that in civilised races these teeth are becoming rudimentary. 2. Syringe the ear carefully with tepid water; and put a drop of glycerine into the ear occasionally at night. There may be a little ear-weakness left.

EDINA.—Try the effect of resting for an hour after meals, if possible, and of taking a little Pepsine with your food.

CIRCLE.—1. Yes; we have tested the Harness Belt, and know it to be genuine. 2. Try the tonic recommended to "Göttingen" above.

F. G. T.—Yes; we think a month at the seaside in a warm locality, and one not over-relaxing (*e.g.*, Eastbourne, or Bournemouth, or Isle of Wight), would do you good. Let us hear from you after you return from the coast.

NONDESCRIPT.—See and follow advice given to "W. M. K." above. Food to be very light; no stimulants. Glad to advise again, if necessary.

CAMBRIDGE.—We think you should try the tonic recommended to "Göttingen" in present number of HEALTH for a time. Do not try the somewhat drastic remedy you name; it is, in our opinion, unsafe, and apt to induce severe symptoms in many cases. Bromide of potass is a depressant; you require exactly opposite treatment. No harm can result, as far as we know, from the practice you name; but, in addition to the tonic above indicated as useful for you, we would strongly recommend you to abstain from all exercise of the kind noted for a few weeks, and you will find such rest enable you to return to your duties with renewed vigour.

IGNORANT.—We fancy you are generally out of sorts from the continuous nature of your work. You would greatly benefit from (1) a change to the sea-side and consequent rest; (2) from resting after meals; (3) from taking Pepsine after your food; (4) from cold sponging each morning if it can be borne; and (5) from taking fifteen drops *Fer Bravais* in water midway between your meals. A holiday and rest, however, forms the foundation of your cure.

A. F.—No; the Condy may be omitted. Sponge whole body with cold water each morning, and rub down briskly thereafter. Smoking should be given up, if possible; very moderate smoking might do no harm.

JOHN RAMSAY.—1. Pulvermacher's Belts are genuine articles. We have tested them. 2. About three weeks is sufficient. 3. Call, and you will be shown them.

MORNA.—Have you tried pure Vaseline applied, more or less, continuously to the affected part? If not, do so, and give this plan a

[*Continued on page* 208.

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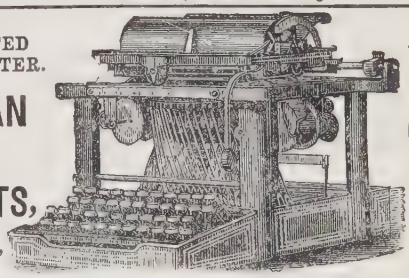

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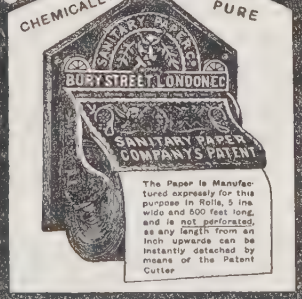
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trial. It is often difficult to restore the natural state of the skin after so long a period has elapsed. Let us know how the advice here given succeeds. Glad to hear again, and to be of service in any way.

Robertus.—What you name is of no consequence, and probably results from your working too hard. Take more open-air exercise, and sleep on a hard mattress. Avoid alcohol and don't smoke too much. Try cold sponging each morning.

John Chapman.—You are simply in a nervous state, and we do not see that there is the least cause for your anxiety. Our advice is to you to simply attend to your digestion, take a little Pepsine with your meals (give up all medicines such as you have been tampering with), and take ten drops of *Fer Bravais* in water thrice daily, for a time, between your meals. You have no need to fear any such ailment as that which dwells in your imagination.

Hubert.—No truth, whatever, in the oyster-shell theory. Oyster shells consist simply of carbonate of lime, and camphorated chalk is in every way, a capital dentifrice. If you wish a good mouth wash, try Calvert's Dento-Phenolene. This will assist in arresting tooth decay.

Marcus.—Try painting the part with tincture of iodine, until the skin becomes reddened, or try the effect of a slight blister. No other means, we fear, can be recommended. Let us hear the result.

E. C.—Probably, the "snuff" you mention consisted of powdered galls, combined with some other ingredient. Any druggist will compound you such an astringent snuff adapted to prevent bleeding from nasal polypi.

S. Redcor.—We have no knowledge of the instrument you name. We further think the use of such an instrument would be dangerous in many cases of the kind you describe.

Golfer.—See and follow advice given to "John Chapman" above. Avoid over-exertion; and see to your digestion. Food to be light and nourishing. Avoid constipation above all things, by including fruits and vegetables in your dietary. Open-air exercise (in moderation) should also be taken.

Pilula (London).—1. It is possible some local condition may have induced your complaint. In tricycling, a saddle is preferable, and should be tried by you; but we strongly suspect your digestive system has been out of order, and hence your ailment, which has no doubt been aggravated by the exercise and use of a seat on the machine. Give up the exercise for a time and get your digestive tract into thorough order. Try Æsculap each morning, and correct any tendency to constipation of course. We have known cases such as yours which tricycling seemed to relieve, but in all such instances the digestive system was always carefully attended to. The exercise, by promoting a free circulation, should rather tend to prevent such an ailment. See that you have no tight-stockings or garters preventing the return of blood in the veins. 2. Try the Cascara Cordial or other preparation of Cascara Bark. Read Dr. Craig's article in Health No. 63.

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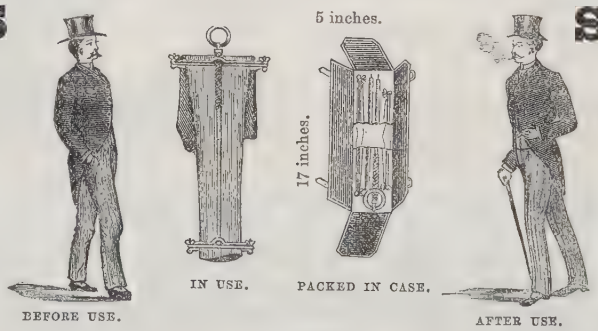

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HEALTH

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, JULY* 11, 1884.

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Notes by the Way

"Health is the foundation of all our physical happiness."—*Herder.*

THE cholera itself, and the prospects of our having to face, if not an epidemic of the disease, at least the occurrence of detached cases, forms the prevalent topic as we write. The renewal of the Cholera Act of last session is a likely proceeding, and as a matter of national safety it is to be hoped that Parliament will sanction the renewal in question. That the disease should have passed to Marseilles from Toulon is, perhaps, not a matter for surprise. The insanitary conditions prevaling at Toulon, to which allusion was made in these "Notes" of last week, are also represented at Marseilles, although to a less extent; and as means of communication between the two towns are, of course, in frequent operation, it would have been surprising had Marseilles, as a great commercial port, escaped infection.

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As things are, there can exist no reason why we should in the least be tempted to give way to the panic of a "cholera scare." It is a noticeable feature of this disease that each epidemic which has visited us has been less fatal and severe than its predecessor. Those of 1832 and 1848 were exceptionally fatal, while that of 1854 was mild as compared with the epidemic of 1848, and the attack of 1866 contrasted very favourably with that of 1854. Cholera would, therefore, seem to be decreasing in virulence—a fact which, however, should be taken *cum grano*, and which should not induce any relaxation of the precautions now being taken against the importation and accurate and speedy treatment by isolation of the disease.

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IT would be gratifying, indeed, if any facts could be collated to warrant the idea that in time cholera will disappear altogether from the list of epidemic diseases. The "Black Death" and "Plague," formerly prevalent diseases, are now unknown. May we not hope that, by increased attention to public health details, cholera will also become extinct? One thing is clear enough, at least—namely, that cholera, like every other epidemic, must find a suitable soil as a condition for growth. The "soil" at Toulon, for example, was fully prepared, by public carelessness and sanitary apathy, for the reception of the cholera germs whenever these germs choose to make their appearance. Conversely, by giving attention to the purity of the water we drink, to the removal and destruction of all refuse matter likely to contaminate air and water, and to personal cleanliness, we assist in rendering the "soil"—represented by the conditions and surroundings of life—an unfavourable and sterile one, as far as cholera-growth is concerned.

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A WORD of seasonable advice with regard to personal health may be added in the present instance. Briefly summed up, such advice consists in the warning that even slight disturbances of health should be at once attended to and corrected, in view of the fact that, when disease of an epidemic character is hovering around us, such disease is most liable to attack those who are "out of sorts." A slight illness, causing bodily enfeeblement, in other words, often acts as a condition which predisposes us to the attack of more serious ailments. In particular, we would caution our readers against the common complaint, often named "summer diarrhœa": an ailment trifling, no doubt, in itself, and often unattended with serious results, but which, under special conditions, is as likely as not to serve as the borderland of more serious illness of choleraic type. Especially in the fruit-eating season is there a tendency to the development of the common disorder just mentioned. Fruit, either of over-ripe or under-ripe kind, should be avoided, and ripe fruit sparingly partaken of. When diarrhœa supervenes, the ailment should be at once checked, and prompt measures taken for the acquirement of sound health. In this way, by attending to the slight disturbances of health to which all are liable, we may often succeed in warding off the more serious calamities of life.

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IT is necessary at the present juncture to repeat the advice and warning, so often given, that householders should look to the condition of their cisterns. In a very large proportion of cases, water contamination—the most frequent source of illness—arises, not from original impurity of water-supply, but from the water being made foul through its passage into, and storage in, a dirty cistern. In one case recently reported in London, a dead rat swollen to the size of a cat, was found in a cistern which served as a source of supply to several families. As we have before insisted in these pages, the cleansing of the house-cistern should be made as regular and statutory a part of the domestic duties, as the sweeping of rooms or the cleaning of windows. A small fee to a plumber would ensure the effective cleaning of the cistern at stated periods—say, not less frequently than once a quarter. The cost of this measure is so small, and the health-gain so great, that "cleansing the cistern," as a primary duty of the householder, should be included among the necessary duties of civilised life. That Transatlantic wit must have been a wise and sound sanitarian, as well as a good citizen, who remarked that "the whole duties of man are, to love his neighbour as himself, to take care of his 'carcase,' and to clean his cistern regularly."

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WE learn that a grand evening fête, under the immediate patronage of their Royal Highnesses the Prince and Princess of Wales, who have announced their intention of being present, will he held at the International Health Exhibition, on Wednesday, July 23, in aid of the Fund for the London Hospitals.

✣ ✣ ✣

AMONG the items of interest which the Health Exhibition has lately presented, the interesting lecture on Electricity in its Physiological Relations, by Dr. W. H. Stone, falls

to be enumerated. Of this lecture, as well as of a succeeding discourse, Mr. W. L. Carpenter will write in HEALTH next week. Miss Ballin, whose papers on "Children's Dress" were published some time ago in HEALTH, lectures on that topic on July 14, at the Health Exhibition.

* * *

A WOMAN, thirty-eight years of age, in a fit of insanity, attempted to commit suicide in the River Irwell. She was rescued, but died five days thereafter from the effects of poisoning by the water of the river—at least, so said the medical man who attended the unfortunate woman. If the medical opinion is correct there certainly exists reason for attention being drawn to the state of the stream in question. A river, whose waters are capable of poisoning any one unlucky enough to become immersed therein, is a new feature in sanitary experience. Let us hope it may be as rare as it appears to be novel, and that the state of the Irwell is not so bad as the foregoing report would seem to indicate.

* * *

THOSE who are interested in the question of the nature and cure of consumption cannot do better than procure and read a shilling pamphlet by Dr. Dale, of Harrogate, dealing with the causes and cure of that malady. Dr. Dale writes in a thoroughly scientific and judicial spirit regarding consumption, and describes in clear and non-technical language the recognised and most reliable methods of treatment. It would be well, we think, if pamphlets and treatises, written in the same spirit as that before us, and dealing with common ailments and their treatment, were more frequently published. We do not know what the "organs" of medical opinion may have to say regarding Mr. Dale's practice of stepping thus boldly out of the professional groove in the endeavour to instruct his fellow men. Professional criticism is not always just where lay instruction has been attempted. But whatever criticism may be passed upon Dr. Dale for his laudable attempt at popular authorship, we can only assert that did medical men more frequently follow in the same lines, we should hear less of the complaints made daily respecting the amount of harm which quack literature effects through its wide dissemination, and through the bold and uncontradicted falsehoods and health errors such literature tends to propagate. Dr. Dale's pamphlet may be obtained from Mr. Hodgson, of 89, Farringdon-street, London, or from Mr. Ackrill, *Herald* Office, Harrogate.

* * *

CONSIDERING, says a correspondent, writing from Harrogate, that the season does not properly commence till August, this favourite and fashionable resort is at present well-frequented. In addition to the mineral waters and baths, it is not generally known that the public water supply (so often defective in many of our most attractive places of summer residence) is of such rare excellence that physicians, in some instances, send patients to Harrogate, not to take the mineral waters and baths, but to receive the benefit of the pure air and domestic water-supply alone. It has been estimated that the number of visitors during the season amounts to 50,000, and every exertion is made by the local authorities for their recreation and amusement, while the enterprise of tradesmen provides numerous excursions to neighbouring scenes of interest at moderate cost.

PURE WATER is such a vital necessity that, without it, illness is certain. None are more prone to the ill effects when impure than the young. To ensure a pure supply send a post-card to the LONDON AND GENERAL WATER PURIFYING COMPANY, LIMITED, 157, Strand, London, W.C., who will return particulars post free.—[ADVT.]

Original Essays

"Life is not to live, but to be well."—*Martial.*

THE TRICYCLE, AND ITS RELATIONS TO HEALTH.

BY VARIOUS WRITERS.

FOURTH PAPER.—THE CHOICE OF A MACHINE.

BY SIGMA SMITH.

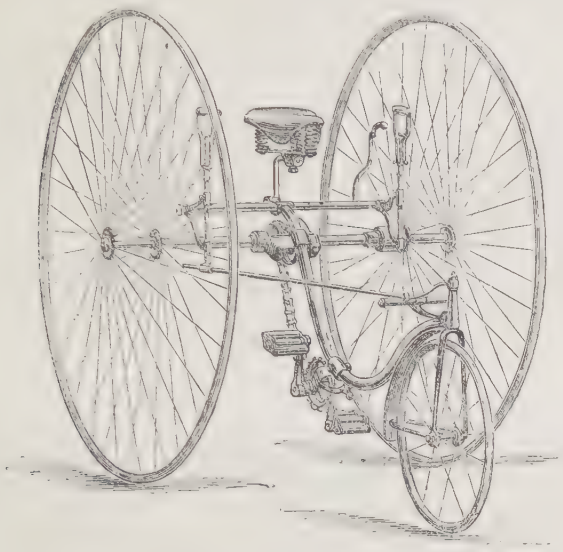
IN the order of their desirability, the next class of machine that comes to notice is the front-steering central double-driver. This machine has the same system of cranks as the Humber, and is, in fact, the Humber type reversed, the steering-wheel being in front. For the great majority of riders, including ladies, this type is far preferable to the Humber type proper, requiring less management, and with riders of equal powers, I really do not think there is any great difference in attainable speed; indeed, I am rather inclined to think that the reason the Humber type has so far been shown to be the most speedy machine has been because, as a rule, all the best riders of the day have ridden tricycles of that class. Apropos of ladies' machines, it may be well to mention here that I think a *front steerer* is most desirable for ladies' use. Ladies are usually more timid and nervous when riding than men, and the sight of their steering-wheel *in front* of them, so that they can see how it turns, is a great consideration. It is a mistake to assume that a lady should ride a style of machine repudiated by the sterner sex, but upon this point I purpose referring at more length in a subsequent paper.

Of course, in speaking of "speed," I do not wish to infer that I deem a high speed the essential feature in a tricycle; but still I attach much importance to this particular, for the simple reason that *high speed means at the same time ease in propulsion.* If a machine will go fast, it must, as a consequence, go easily, and though, as a rule, an elderly rider may not wish to travel at racing speed, everyone wishes to travel easily. Therefore it is desirable to get a machine that will at pleasure travel fast, as this power is essentially accompanied by ease in propulsion. Given a fast type of machine, and given also the desire to go gently along, it is, of course, easy to go slowly, even with the fastest possible machine, while the rider gains all the ease of working attendant upon the fast riding powers and easy running of his machine. This is a point that should never be lost sight of in procuring a tricycle, as even an octogenarian will be sure at times to feel a pleasure in seeing how fast he can go as compared with other vehicles on the road when he becomes accustomed to his machine, and as speed and ease of riding are almost synonymous terms, it is better to get a machine that *will* travel fast at pleasure than one that could never be made to go with any speed, no matter what exertion were bestowed upon the work of propulsion. This may be safely accepted as a rule—the machine that goes fastest when pushed is also the easiest to propel.

I here give a sketch of the Central Driver Front-Steerer. It will be seen that it has two equal-sized driving-wheels, with a steering wheel in front, actuated by a steering-bar moving to and fro in a ratchet, and governed by a spade handle on the right side. This form of steering is most sensitive, and is the safest of all down long and steep hills,

SWIMMING AND LING'S SWEDISH EXERCISES.—MRS. FLORENCE WILLIAMS, Certificated Teacher. Schools and private families attended.—The Crown Baths, Kennington Oval, S.E.

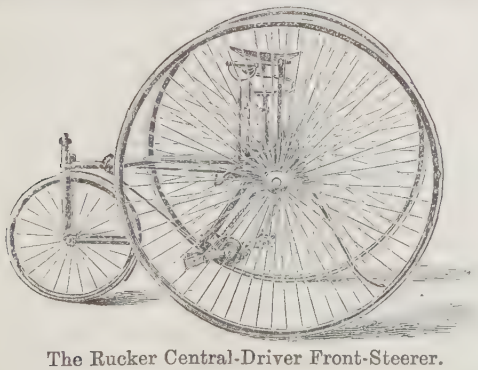
as a machine with this class of steering will "fly" hills with surprising steadiness. There can be no question that the wheel in front is a far more reliable means of steering with truth at the highest speeds than any other arrangement, as the whole machine unerringly follows in the wake of the wheel in front, however small this particular wheel may be, though it should never be less than 18 or 20 in. in diameter. It is, in fact, essential for safety's sake that the steering should be from the front, most decidedly not from the rear, as the latter form is apt to swerve wildly when at anything like a high speed, especially down hill. This is not a mere opinion, but is the result of a vast amount of actual experience, not only my own, but that of others, and is the unanimous evidence of all good riders, not a single one of whom is to be found upon a rear-steerer. The Central-Driving Front-Steerer possesses all the advantages of the most open-fronted rear-steerer, with the safety of



The Imperial Club Central-Driver.

any other class of front-steering machine, and as a matter of fact, in an emergency the rider can alight from the machine, either from the front or over the framework, in rear, a very great point, as all riders must needs admit.

The best machines of this type are the Imperial Club, No. 3 (Coventry Machinists' Company), the Sparkbrook National (Hillman, Herbert, & Cooper), the Rucker (Letch-



The Rucker Central-Driver Front-Steerer.

ford-buildings, Bethnal-green), the Markham (363, Edgware-road), the Front-steering Humber (Humber, Marriott, & Cooper), the Surrey Machinist Company (the Borough), and Singers also produce a machine of the type.

Any of these are really good machines, and can with safety be recommended, the workmanship and finish being almost equally good, but I should give the preference to Nos. 1, 5, and 6. The front-steering Humber is producing remarkable performances in the shape of high speed and successes upon the racing-track, while the Imperial Club is exceptionally light and highly-finished. The Surrey Machinists' is also built very light indeed, and is a very fast machine.

The best size of wheels of this type would be from 44 to 48-in. diameter, the smaller sizes being geared up as high as the rider's strength will admit.

In view of the numerous types of machines, I should be inclined to recommend an intending purchaser to visit the Emporium of one of the leading firms mentioned, and he will there be able to see for himself the several patterns, and can select the one he likes best, and, as the makers will be just as much interested in the sale of one type as another, they will not be so apt to seek to pass off an inferior machine upon the tyro, simply because they desire to sell out the pattern in stock. The Coventry Machinists sell all the patterns extant, so also do Singer & Co., and the same may be said of Hillman, Herbert, & Cooper, although their Cruiser differs from the generally-accepted Humber pattern, inasmuch as it is lacking the cross handle-bar, which latter is, I believe, one of the good points in this type of machine.

In a subsequent paper I will describe and give cuts of other machines, including Sociables and Tandems; but the two types already mentioned are undoubtedly the best, and will meet the requirements of all.

One point which is of more than passing importance is to have a machine built as light as possible consistent with strength. The rule should be, "the lighter the rider, the less weight in the machine."

PUBLIC PARKS AND OPEN SPACES.

By George Howell, F.S.S.

SIXTH PAPER.

2. Commons and Open Spaces Acts.—The Metropolitan Commons Act, 1866, 29 & 30 Vict., c. 122, has for its object the preservation of commons and open spaces in and near the Metropolis. Under its provisions, the Board may present a memorial to the Inclosure Commissioners with respect to any common within the Metropolitan area, and the Commissioners are thereupon to make inquiry and prepare a scheme for its management, which scheme is to be confirmed by Parliament. The Metropolitan Commons Act, 1878, 41 & 42 Vict., c. 71, gives to the Board power to purchase and hold, with a view to prevent the extinction of the rights of common, any saleable rights in common, or any tenement of a commoner to which rights of common are annexed. Those two statutes are general Acts of authorisation.

Besides these there are several supplemental and special Acts, empowering the Board to do particular things, as regards commons and open spaces. The Metropolitan Commons Supplemental Act, 1871, 34 & 35 Victoria, c. 57, confirmed a scheme prepared by the Inclosure Commissioners, under the provisions of the Act of 1866, for the management of Blackheath, whereby all that remained of the Heath, some 267 acres, was placed under the jurisdiction of the Board. A second Supplemental Act of the

Scott's Midlothian Oat-Flour.—Messrs. A. & R. Scott, of Kingston, Glasgow, and Finsbury-square, London, have prepared a singularly pure and nutritious "Oat-flour," which bids fair to take high rank among the food products which are specially adapted for infants and invalids, and for the use of dyspeptics in particular, whose digestion is weak, and whose stomachs refuse to assimilate foods of ordinary kind.—Ed. Health.—[Advt.]

same year, 34 & 35 Victoria, c. 63, confirmed a scheme of the Inclosure Commissioners for the management by the Board of Shepherd's Bush Common, consisting of eight acres. In the same year was also passed "The Hampstead Heath Act," 34 & 35 Victoria, c. 77, confirming an arrangement made by the Board with the Lord of the Manor of Hampstead, Sir John Maryon Wilson, for the purchase of his "rights" over Hampstead Heath, for the sum of £45,000; thus securing 240 acres of splendidly situate land as a place of resort and recreation for the public for ever. Hampstead Heath has always been a favourite spot with Londoners, and with no man more so than with the late Charles Dickens. The Wandsworth Common Act, 34 & 35 Vict., c. 181, was also passed in 1871. By this Act the common was vested in a body of conservators, one of whom is elected by the Metropolitan Board of Works. An annual payment of £250 a year is secured to Earl Spencer, by the provisions of the Act, in respect of his rights as lord of the manor, and the expenses in connection with the common are to be defrayed by means of a rate levied on the parishes of Wandsworth and Battersea respectively. By another Act, passed in the same year, Wimbledon Common, second only to Epping Forest in extent and beauty, and Putney Lower Common, were vested in conservators, representing both local and general interests, Earl Spencer, as lord of the manor, being awarded payment in the shape of an annuity, based upon his previous receipts from these commons.

The Metropolitan Commons Supplemental Act, 1872, 35 & 36 Vict., c. 43, confirmed a scheme of the Inclosure Commissioners for the management by the Board of the several pieces of Lammas lands known as the Hackney Commons, comprising about 165 acres. Owing, however, to some neglect on the part of the Board in not legally asserting the common rights reserved to it under the Act, the land was not satisfactorily secured, and litigation followed. In the year following, 1873, The Metropolitan Commons Supplemental Act, 36 & 37 Vict., c. 86, confirmed a scheme of the Inclosure Commissioners for the management of Tooting-beck Common, consisting of about 144 acres, the manorial rights in which the Board agreed to purchase for the sum of £10,200. Tooting-graveney Common, 63 acres in extent, and Streatham-green, adjoining the manor of Tooting-beck, were also secured by the Board for the use of the public. The Metropolitan Commons Supplemental Act, 1877, 40 & 41, Vict., c. 201, confirmed a scheme of the Inclosure Commissioners for the management of Clapham Common, consisting of 220 acres, the manorial rights in which the Board agreed to purchase for the sum of £18,000; and also a scheme for preserving Bostal Heath, 55 acres in extent, the manorial rights in which the Board agreed to purchase for £5,500. The Plumstead Common Act, 1878, 41 & 42 Vict., c. 145, empowered the Board to purchase the estate and interest of Queen's College, Oxford, in Plumstead Common and Shoulder-of-Mutton-Green, the former consisting of 110 acres, and the latter of four acres. A portion of Plumstead Common is to be kept open for ever as an exercise ground for troops, for which the War Department agreed to pay the Board £4,000 as purchase-money. The Wormwood Scrubs Act, 1879, 42 & 43 Vict., c. 160, vests in the Board 194 acres of common lands, known as Wormwood Scrubs and certain lands adjoining, the same to be maintained as a place of public recreation, subject to the rights of user by the military and volunteer forces. The Metropolitan Commons Supplemental Act, 1881, 44 & 45 Vict., c. 18, confirmed a scheme of the Inclosure Commissioners for the transfer to and management by the Board of Brook Green, four acres; Eel-Brook-Common, fourteen acres; and Parson's Green, two and a-half acres, at a cost of £12,000. And The Metropolitan Board of Works (Hackney Commons) Act, 1881, 44 & 45 Vict., c. 148, confirmed an agreement made by the Board with Mr. W. A. T. Amhurst, Lord of the Manor of Hackney, for the purchase of his manorial rights over the Hackney Commons, for the sum of £33,000, whereby nine several pieces of common land, consisting in the aggregate of about 180 acres, are secured to the public for their free use as recreation grounds for ever. The Board has also recently come into possession of Peckham Rye, 64 acres; Goose Green, 6¼ acres; and Nunhead Green, 1½ acres; at a cost of £1,000; being the amount originally paid for the lands by the Camberwell Vestry, in whom formerly they were vested. The total extent of land now vested in the Board for the use of the public is 1,769½ acres; and the total expenditure upon these open spaces, to the end of last year, was £478,031. 18s. 2d. In addition to the lands before specified, but included in the total acreage, should be mentioned the gardens on the Victoria, Albert, and Chelsea Embankments, all of which are under the jurisdiction of the Board.

(To be continued.)

A Valuable Invention.—It is gratifying to learn that Mr. R. Adams, of 17, Blackman-street, London, S.E., whose fanlight-openers and silent door-springs are being extensively used, has received large orders for his Patent Reversible Window. The sashes, although they slide up and down in the usual way, can be instantly turned inside out, enabling anyone to clean each side of the glass with ease, while standing in the room.—[Advt.]

The Health of Cincinnati Improved by Floods.—For the second time it has been proved in Cincinnati that a flood, instead of being followed by sickness, prepares the way for a period of unusual healthfulness. It was so after the flood of last year, and is so now. A prominent physician says that the flood cleaned and purified that part of the city which has always been the starting-place for all the diseases which have prevailed. The flooding of the lower stories of filthy buildings, the moving of household goods to other parts of the city and the moving of them back again, and the general cleansing which the flood made necessary, seemed to have destroyed the lurking germs of disease. In the bottoms, where there is usually more or less of diphtheria, scarlet fever, malaria, &c., at this time of year, there is now hardly a case of sickness reported. In other words, the human pigsties have been washed out. The doctors are complaining that they have nothing to do.

Whale as Food.—A Norwegian speculator has been turning his attention recently to the introduction of whale-meat as an article of food. He was induced to do this through a belief that it was both nutritious and palatable, and the knowledge that immense quantities of it are annually thrown away, notwithstanding large quantities of it are eaten each season by those engaged in the whale fisheries. He concluded that if some preserving process were adopted it could be profitably used on shore. He accordingly made arrangements with several captains of whaling vessels and two meat-preserving firms, and some time since he gave a whale dinner. At this dinner he claims to have proven that whale-flesh may be cooked in a dozen different ways, and that it forms a delicious as well as a wholesome article of diet. It is said that some parts of the fish supplied material for, and excellent imitation of, turtle soup; other portions resemble beef, while other portions, again, are almost as white and tender as chicken.

Personal Health

"Be timely wise;
With health all taste of pleasure flies."—*Gay.*

THE PHYSIOLOGY OF THE FEET.

By T. S. Ellis, M.R.C.S.,

Consulting Surgeon (late Surgeon and Ophthalmic Surgeon) to the Infirmary at Gloucester.

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The International Health Exhibition will serve one of its most useful objects if it demonstrates not only the evils arising from the use of improper boots, but the form which they should have so as to avoid those evils. Any opinion as to what this should be must depend on the view taken of the functions of the parts they are intended to cover—on the physiology of the feet as well as the shape of their outlines and the anatomy of their structure.

Disregarding the action of those parts not affecting the feet, the act of walking may, as I think, be thus described. The foot put forward should reach the ground when nearly flat; the toes, the organs of feelings, should be the first to reach it,* not the heel, which could not be without some concussion, however slight. The heads of the metatarsal (or instep) bones and the toes are then pressed firmly against the surface. The great toe, having only two phalanges (or joints), is held down in its whole length, the flexor tendon (or sinew of the muscle bending the toe) being attached to the final phalanx close to the joint between them. The little toes touch at their tips only; their flexor tendons being also attached to the last joint of each, traction on them causes a rising at the joint between the two proximal phalanges (or joints nearest the instep) as the tips of the toes are drawn backwards. By this arrangement, in the one case a firm solid base is formed from which the body can be propelled onwards, in the other an additional hold on the surface, by a rudimentary action of grasping is afforded. As the body is moved onwards, the extensors (or extending muscles) of the great and of the little toes, without lifting them from the ground, where they are held by the flexors, draw the leg forwards; while the anterior tibial muscle, or that lying in front of the shin, in assisting this movement, serves another purpose. It is attached to the crown of the arch, and in action tends to prevent any sinking there as the weight of the body comes upon that structure. This purpose is much more effectually served in another way; the muscles of the calf allow the heel with firmness and precision, but withal gently, to touch the ground, and the step is completed.

The heel is then raised, but the weight of the body is not borne, as commonly stated, by the muscles acting on the heel and by them only. The deeper muscles, the posterior tibial muscle (or that behind the shin) with the long flexors and the long peroneal muscle, acting round the inner and outer side of the ankle respectively, all of them assist in raising the body and at the same time have a most important influence in maintaining the arch. The tibialis posticus, attached by its expanded tendon to the tarsus on the under surface beyond the astragalus, the bone on which the weight of the body rests, materially assists in supporting the arch from below. The long flexors passing beneath the arch from one abutment to the other are, in relation to it, as bowstrings to a bow, or rather, as the two tendons cross each other, they may better be compared to the tie-rods of a roof.

* I think that this is so but, as a fact, in walking, as almost universally practised, the heel first reaches the ground.

This arrangement of the two tendons crossing each other is very curious: that going to the great toe is lowest in passing round the ankle, in order to be, as nearly as possible, at the extremity of the arch or bow at that end, as it is at the opposite one. If, however, it passed directly across the sole from end to end there would be little if any free space beneath, but being crossed by the flexor longus digitorum muscle, which comes round the ankle at a higher level, it is so drawn up that a hollow beneath the arch is formed. Another muscle called the flexor accessorius, by drawing back the tendon of the flexor longus pollicis, compels it to cross the other nearer to the heel, and so increases this effect. Thus the flexor longus pollicis, regarded as the chord of the arc, becomes itself an arc.

The tendency to inversion which all these muscles, acting from the inner side of the ankle, might occasion is corrected by the long peroneal on the outer side; it also, acting on the base of the first metatarsal or instep bone, a point considerably beyond the centre of gravity, has a bracing action on the arch, as the weight of the body falls upon it. In this, too, no doubt the small muscles of the sole assist those of the calf, but I cannot accept the converse statement that it is the "muscles of the sole assisted by the tibial or shin muscles" which "are the active agents." The deep muscles of the calf have much the more potent influence. Thus it is that by the action of muscles the whole of the strain which the weight of the body in walking would otherwise throw on the ligaments binding the arch together is removed, and any tendency to flattening of it prevented.

This, which has been called my "bowstring theory," is the view I put forward in a little monograph, "On the Arch of the Foot," written and printed in 1877. For reasons therein given I could not accept the view that the arch is maintained by ligaments, or believe in the carriage-spring movement of those ligaments, yielding to the weight of the body, as the explanation of a springy gait. It is really due to the heel being gently lowered and firmly raised. Upon this the grace of walking depends. On the same grounds I hold that in proper walking the foot does not lengthen. Camper, whose treatise is regarded as classical, but which, as I think, contains many important errors of fact and of induction, said that his knowledge of anatomy taught him that it did do so. On the contrary, I believe that as the tightening of a bowstring approximates the ends of the bow, so the bowstring action of the flexor muscles on the arch of the foot tends to shorten it. If walking were a succession of standings, flat-footed alternately on either foot, no doubt there would be lengthening, as the ligaments of the arch yielded. Such a mode of progression is, we know, possible; and, indeed, we sometimes see something like it, hardly, however, to be called walking. I would ask those who believe that the foot in walking lengthens "one-tenth of its length, or about an inch" (a statement on high authority made during the past year) to consider this, What, then, would be the condition of the sole after a long walk, from friction caused by the necessary sliding with the weight of a man borne upon it? As in every mile of the ordinary march of soldiers more than a thousand steps are taken on each foot, the result would not be pleasant even to imagine.

(*To be continued.*)

To Improve Lemonade.—In Nice an ounce and a-half of orange-flower water to the gallon of syrup is found to be a great improvement to lemonade, giving more bouquet and a more delicate flavour.—*Chem. and Drugg.*

Healthy Houses

"A happy home must be a healthy home."—*Anon.*

LIGHT AND HEALTH.

By GEORGE G. ANDRÉ.

SECOND PAPER.

THE withholding of direct light is in the case of human beings, as in that of the lower animals and plants, followed by effects of the same nature as the withholding of all light. The difference is one of degree only, and the degree will vary with the intensity of the light. Bodies exposed to the diffused reflected light of places into which the rays of the sun cannot penetrate directly receive much less than others upon which the direct rays fall. A greater or less proportion of the rays, according to the nature and the number of the reflecting substances, are absorbed; and not only is the quantity or intensity of the light thereby diminished, but, by the absorption of some of the rays and the reflection of others, its quality is changed. It is a necessary consequence that any diminution of the intensity of the sunlight to which a body is exposed should be followed by a corresponding decrease in the beneficial effects it is capable of producing; and it is highly probable that any change in the quality of the light would have effects of a pernicious character.

As a matter of observed fact, these results do follow from a privation of direct sunlight, and the latter is found to be as indispensable to vigorous, robust life in human beings as it is to that state in plants. Men in shade, like plants in shade, blanch and sicken; and the degree to which the sickening shall reach will be determined by the nearness to darkness to which the shade shall approximate. Hence we see one cause of the healthful influence of open-air exercise, the invigorating effects of which are no doubt largely due to the grateful action of light. Examples of the baneful effects on health due to an insufficiency of direct light are only too numerous. Large cities are full of them. Seek out the dwellers in garrets and in those sunless and cheerless back rooms in which a grinding poverty has condemned so many of the labouring city poor to drag out a joyless existence. The sallow cheeks and lustreless eyes tell a tale of darkness, of a low vitality occasioned by a want of sunshine.

In a less, but still in a very marked, degree, the numerous and ever-increasing class of city clerks, penned-up in imperfectly-illumined offices, exhibit the maleficent influence of the etiolating conditions under which their lives are passed. These men of shade growth are of that peculiar sallow hue which so unmistakably indicates the want of sufficient light; and women generally, but especially the women in towns, compelled as they are to live chiefly within doors, where they are shielded from direct rays, have less of the ruddy tints of health than men, who, for the most part, spend much of their time out of doors. Compare the health of the countrywoman whose occupation is in the fields to that of her wealthier sister who blanches amid the luxury of her blind-protected boudoir. The difference is largely due to sunshine and shade. Reverse the conditions, and the peasant will blanch and sicken, while the woman of fashion will assume the colours which accompany robust health. These facts are none the less true because they are not conspicuous in every individual subjected to what we have denominated etiolating conditions. Other causes operate to aid or to counteract the influence of those conditions; and native strength and vigour of constitution may for a time oppose what seems to be a successful resistance. Hence, as observed in individuals, the effects we have described present themselves to notice in insensible gradations. But they are none the less there because they are not recognised or are not attributed to their true cause. It hardly admits of doubt that the indefinable ailments, the languor and depression of spirits, the general want of vitality implied in the expression "delicate health," so lamentably common among women in towns, is very largely due to an insufficiency of direct light. For this insufficiency, however, they are, as we will presently show, themselves chiefly responsible. And if the consequent low vitality leads, as it probably does, to the excessive use of stimulants, we have here disclosed a field for action to which temperance societies might well devote some attention.

So far we have been dealing with facts hardly open to dispute, and if we were to stop with these, we should have said but little that had not been more forcibly said before. But we purpose to carry the matter a step further, and to deduce some consequences that are, hygienally estimated, of considerable practical importance. The health of the individual, separately considered, is dependent on the observance of numerous conditions, and is subject to manifold influences; and that of a large community is again affected by special influences, which act upon the component individuals collectively; so that a general state cannot be fairly ascribed to one cause as the sole agent in bringing it about. But though it would be an altogether unwarrantable deduction from ascertained facts to infer that the lower vitality observable in large towns is wholly an effect of an insufficiency of light, and extremely rash even to assert that it is due chiefly to that cause, yet it is certain that to a relative want of this potent agency, and especially to a want of it in its state of direct incidence, may be attributed the largest share, possibly by far the largest share, in bringing about that deplorable result.

Town life is essentially indoors life. Country life is, on the contrary, spent chiefly in the open air. The former affords, therefore, much fewer opportunities for bathing the body in sunlight than the latter. Moreover, the degree of illumination within doors is less in the one case than in the other, and in the matter of direct light the difference is still greater. Country dwellings are generally isolated one from another. The houses in towns are massed together and generally undetached. In the former, the windows all look upon the bright, open country. In the latter, many look into sombre passages and dusky courtyards. In the one case, the sun shines freely upon three sides of the house. In the other, his direct rays are cut off from all but one side, and even there they are often hindred by obstructions. The homes of the poor in towns are usually situate in profound gloom, in narrow back streets, courts, and alleys. One of the consequences of the

INTERNATIONAL HEALTH EXHIBITION. — EASTERN GALLERY. — GAS SUPERSEDED BY DAYLIGHT.—See Chappuis' patents. 69, Fleet-street.—[ADVT.]

SANITARY INSPECTIONS.—Fee for Survey and Report, in London, 2 Guineas. Estimate given and Improvement Works carried out when required.—THE SANITARY ENGINEERING CO., 115, Victoria-street, Westminster, S.W.—[ADVT.]

SCOTT'S MIDLOTHIAN OAT-FLOUR.—There is no preparation which can be assimilated with greater facility than such a flour as this. Those who suffer from indigestion might substitute for their ordinary breakfast materials this flour, prepared according to the recipe given by Messrs. Scott and printed on the tins.—ED. HEALTH.—[ADVT.]

THE "BONCONTOUR" STAY-BELT and other Orthopædic Apparatus, made by K. R. SCHRAMM, Orthopædic Mechanician, 64, Belmont-street, Chalk Farm-road, London, N.W.—[ADVT.]

rapid increase in the value of building land is seen in the desire of owners to reduce the open spaces which separate one house from another on the side farthest from the street, and to carry up their buildings to a greater height than formerly.

Both of these practices occasion a diminution of light within, especially upon the lower floors. The same cause has led to the extension—the almost universal adoption, indeed—of that detestable system of underground kitchens, which constitute a characteristic feature of the domestic architecture of the present day. In these subterranean dungeons, low down beneath the area railings, into which no chance direct ray of sunshine can ever find its way to cheer the dreary life of its occupants, our domestic toilers are condemned to pass their lives. Beneath the bright, luxurious apartments of every urban mansion there exists a prison-house where human beings languish in dispiriting gloom and enervating semi-darkness. Nor, unhappily, is the abominable system confined to the habitations of the wealthy. Search throughout the new parts of any town; it will be hard to find a house, no matter what its quality may be, that is not set over one of these odious places.

But little better are the "offices" in which the larger number of clerks scratch away their monotonous lives. Immured from morning till night within those cheerless apartments, whose dim light often needs the artificial aid of gas at noonday,* these slaves of the pen are subject to all the dispiriting and enfeebling influences which operate in the presence of partial darkness. After the "offices" come the workshops, hidden away in holes and corners which no direct ray can ever reach. Thousands of these exist, and in them thousands of healthy constitutions sink into feebleness and premature decay. Even the streets, the open air of towns, are less strongly illumined than country roads. And, though the tendency of the present day is to widen the streets, the effect is counteracted by the increased height given to the buildings. And over all there hangs a smoke-laden atmosphere to intercept a notable proportion of the sun's rays. Add to all this a mode of living which robs the day in favour of the night, and we have adduced enough facts to show that there is in large towns a sufficient privation of light to account for much of the difference in the health of their dense populations and that of the more sparse populations of small towns and villages.

The effects of this cause are, moreover, directly observable in the general lack of those fresh, crimson tints that only life in the open air can bring, and in the commonly-seen distinctive pallor which marks the progress of etiolation. Let it be borne in mind that though, in ordinary conditions of life, it is not easy, and in most cases indeed not possible, to distinguish the effects upon health due to an insufficiency of light, the inferences here drawn from incontrovertible facts may nevertheless be wholly and strictly true. Of the numerous other agencies which operate to enfeeble and impair a sound organisation, each tends to mask the influence of the rest by confusing all effects in one common consequence. But the effects, so marked and so easily distinguishable in extreme cases, must always be produced in a degree proportionate to the more or less intense, prolonged, and disturbed action of the cause. And we have in the present conditions of urban life a privation of light to which a rural population is not subjected.

* The use of Chappuis' Reflectors would obviate the disadvantage to which reference is made. These reflectors utilise daylight as a means of illumination in the darkest offices.

Public Health

"Health is the first Wealth."—*Emerson.*

NATIONAL WORK AND HEALTH.

(*Address delivered at the International Health Exhibition by Sir James Paget.*)

II.

Before I speak of any other losses of work or of wealth due to sickness, permit me, as in parenthesis, to point out to you how very imperfectly their loses are told or even suggested by our bills of mortality. These, on which almost alone we have to rely for knowing the national health—these tell the losses of life; and more than misery enough they tell of; but to estimate rightly the misery of sickness and the losses of all but life that are due to it, we need a far more complete record than these can give.

Take, for example, such a disease as typhoid fever—that which Mr. Huxley has rightly called the scourge and the disgrace of our country. It has of late destroyed in England and Wales, among persons in the working time of life, nearly 4,000 in the year. Its mortality is about 15 per cent., so that if in any year 4,000 die of it, about 23,000 recover from it. Of these the average length of illness is, on the authority of Dr. Broadbent, about ten weeks. Here, therefore, from one disease alone, and that preventible, we have an annual loss of 230,000 weeks' work, without reckoning what is lost with those who die. And the same may be said of nearly all the diseases that are most prominent in the bills of mortality. The record of deaths, sad as it is, tells but a small part of the losses of happiness and welfare that are due to sickness. It is as if, in a great war, we should have a regular return of the numbers killed, but none of the numbers sick and wounded, though these, more than the killed, may determine the issue of the war.

Let me now tell of another loss of work and of money through sickness and early death. In all the estimates I have yet referred to, no account is taken of those who are ill or die before they are fifteen years old. They are not reckoned as in the working time of life, though in some classes many thousands of them are. [In the domestic, agricultural, and industrial classes of the Registrar-General nearly half a million of them are included.] And yet the losses of work due to sickness among children must be very large. Consider the time which might be spent in good productive work, if it were not spent in taking care of them while they are ill. Consider, too, the number of those, who, through disease in childhood, are made more susceptible of disease in later life, or are crippled, or in some way permanently damaged; such as those who become deaf in scarlet fever, or deformed in scrofula or rickets, or feeble and constantly invalid, so that they are never fit for more than half work or work which is only half well done. These losses cannot be counted, but they must be large; and there are others more nearly within reckoning; the losses, namely, which are due to the deaths of those who die young. It may justly be said that all that they have cost during their lives is so much money sunk; so much capital invested and lost. If they had lived to work, their earnings would have been more than sufficient to repay it; but they have died, and their cost is gone without return. The mortality of children under fifteen in 1882 was nearly a quarter of a million: what have they cost? If you say only £8 a-piece, there are more than £2,000,000 sterling thus lost every year. But they have cost much more than this, and much

more still is lost by the loss of the work they might have lived to do.

I will add only one more illustration of these losses, which is always suggested by looking at tables of mortality. The deaths of persons between 25 and 45 years old, that is during what may be deemed the twenty best working years of life, are annually between 60,000 and 70,000; in 1882 they were 66,000. Think, now, of the work lost by these deaths; and of how much of it might have been saved by better sanitary provisions. If one looks at the causes of their deaths, it is certain that many might have been prevented, or, at least, deferred. Say that they might have lived an average of two years more; and we should have had in this year and last an increase of work equivalent to that of at least 6,000,000 weeks; as much, in other words, as 6,000,000 people could do in one week.

More instances of losses of work by sickness and premature death might easily be given, but not easily listened to in this huge hall. Let these suffice to show something of our enormous annual loss, not only of personal and domestic happiness—that is past imagining—but of national power and wealth. Surely we ought to strive more against it.

But, some may ask, can these things be prevented? are they not inevitable consequences of the manner of life in which we choose or are compelled to live? No; certainly they are not. No one who lives among the sick can doubt that a very large proportion of the sickness and the loss of work which he sees might have been prevented; or can doubt that, in every succeeding generation, more may be averted, if only all men will strive that it may be so.

Let me enumerate some of the chief sources of the waste as they appear to one's self in practice, or as one looks down a table of mortality.

Of the infectious fevers, small-pox might be rendered nearly harmless by complete and careful vaccination. Typhus and typhoid, scarlet fever and measles, might, with proper guards against infection, be confined within very narrow limits. So, probably, might whooping-cough and diphtheria.

Of the special diseases of artisans there are very few of which the causes might not be almost wholly set aside. Of the accidents to which they are especially liable the greater part, by far, are due to carelessness.

Of the diseases due to bad food and mere filth; to intemperance; to immorality; in so far as these are self-induced, they might, by self-control and virtue, be excluded. And with these scrofula, rickets, scurvy, and all the widespread defects related to them, might be greatly diminished.

It can only be a guess, but I am sure it is not a reckless one, if I say that of all the losses of work of which I have spoken, of all the millions of weeks sadly spent and sadly wasted, a fourth part might have been saved, and that, henceforth, if people will have it so, a still larger proportion may be saved.

We may become the more sure of what may be done by looking at what has been done already. Let me show some of it; it will be a relief to see something of the brighter side of this picture.

In a remarkable paper lately read before the Statistical Society, Dr. Longstaff says:—"One of the most striking facts of the day, from a statistician's point of view, is the remarkably low death-rate that has prevailed in this country during the last eight years." In these years the annual death-rate has been less than in the previous eight years, in the proportion of two deaths to every 1,000 persons living. The average annual number of deaths has been 50,000 less in the last than in the previous eight years. Doubtless many things have contributed to this grand result, and it is not possible to say how much is due to each of them; but it would be unreasonable to doubt that the chief good influence has been in all the improved means for the care of health which recent years have produced. This is made nearly certain by the fact that the largest gains of life have been in the diminution of the deaths from fever, and of the deaths in children under fifteen years old; for these are the very classes on which good sanitary measures would have most influence.

The annual number of deaths from typhus, typhoid, and the unnamed fevers, has been about 11,000 less than it was about twenty years ago. The annual number of deaths of children under five years old has been about 22,000 less than it was; and that of children between five and fifteen has been upwards of 8,000 less.

These are large results, and though they tell of only deaths, yet they bear on the chief subject I have brought before you—the working power of the nation; for, however much of the average we might assign to improved methods of medical treatment of fever, yet the diminished number of deaths means a very large diminution in the total number of cases. The deaths during the working years of life were 6,500 less; and, this being so, we may hold that, if the average mortality was, say, 25 per cent., the diminution in the total number of cases must have been at least 25,000; and if we may believe, as before, that each of these involved ten weeks of sickness, we have, in these fevers alone, a clear saving of 185,000 weeks' work in every year.

And so with the diminution of the mortality among children, there must have been greater diminution in the number of costly and work-wasting illnesses, and a large saving of money that would otherwise have been sunk. And not only so, but many of the children saved in the last eight years will become bread-winners or care-keepers; and who can tell what some of them will become? or what the world would have lost if it had lost them?

So late as 1719, there is no mention made of the potato in some of the horticultural works published at that time, whereas now it is widely cultivated throughout the globe as one of the most important agricultural products.

TO REMOVE INK-STAINS FROM CARPETS.—Bœttger recommends the use of a concentrated solution of sodium hypophosphite for the removal of ink from woven tissues. Recent stains should be thus easily removed, old ones must be rubbed with the solution for some time. For old ink-spots, the carpet may be moistened with hot water (and, if convenient, kept over boiling water), and finely-powdered oxalic acid rubbed upon the spot. Ammonia water should be in readiness, and the acid neutralised, if the original colour of the carpet is affected. In the case of marking-ink stains, the fabric may be soaked in a solution of calcium chloride and rinsed in ammonia water.

MEDICAL AND SANITARY EXHIBITION, 1881.—AWARD OF MERIT.—DIABETES. VAN ABBOTT'S GLUTEN BREAD, and all other suitable Foods for Diabetic Patients. Dietary Tables and Price Lists post-free on application. VAN ABBOTT, 5, Princes-street, Cavendish-square, W.—DELICATE CHILDREN AND ADULTS SUFFERING FROM NERVOUS DEPRESSION. VAN ABBOTT'S HYPOPHOSPHITE OF LIME BISCUITS, for Delicate Children, especially those suffering from Deficiency of Bone, Weak Joints, or Debility, and Adults suffering from Nervous Depression. Each Biscuit contains five grains of the Hypophosphite of Lime. "Quite free from disagreeable taste, and taken willingly by Children, and certainly provide an excellent means of administering this valuable compound. Our analysis proves the accuracy of the printed descriptions on the labels of the boxes. The Biscuits were suggested by Mr. W. Adams, of the Orthopædic and Great Northern Hospitals." — *Lancet*, Nov. 4 1876.—VAN ABBOTT, 5, Princes-street, Cavendish-square.—[ADVT.]

Jottings from the Journals

"Th' ingredients of health and long life are
Great temperance, open air,
Easy labour, little care."—*Sir Philip Sidney.*

Electricity in Chronic Rheumatism.—Professor Seeligmüller claims, says a foreign contemporary, to have met with remarkable success in the treatment of chronic articular rheumatism by electricity. He uses a metallic brush-electrode with stiff wires, which he connects with the negative pole, the positive pole being attached to a flat sponge electrode. The latter is damped and placed on the limb near the affected articulation, then the metallic brush is applied over different parts of the joints, being held in contact with the integument in each place for the space of from one to ten seconds. The application is very painful, but the Professor remarks that the patients soon grow used to it. After a sitting the skin is covered all over with little dots, looking as if the Baunscheid instrument had been employed. The mode of action the author does not explain, but thinks it cannot be entirely owing to the counter-irritation, for he has used other equally severe cutaneous irritants without meeting with anything like the success obtained by this method. One patient, who had been treated for eight years for chronic rheumatism by all sorts of methods, was able after the first application of electricity to raise his arm, which had been powerless for six months; after the third application all the movements were normal. Another man was unable to move either his wrist or his shoulder, owing to rheumatism, and after five sittings was discharged as cured, and was able to resume his work as a stone-mason.

* * *

Water in the Dietary of Young Children.—In a communication to the *New York Medical Journal*, Dr. Remsen, of the Nursery and Child's Hospital, calls attention to the general ignorance which prevails as to the necessity of furnishing infants with a sufficient quantity of water, especially in hot weather, and whether they are brought up at the breast, or artificially. For want of this, the fluid portion of any food introduced into the stomach is quickly taken up, leaving the solids too thick to be easily digested. They ferment and produce indigestion and colic, together with diarrhœa. As a consequence of the thickened state of the blood thus produced, excretion of sweat is arrested, and a state of collapse is developed. In warm, dry weather, babies will drink cool water every hour or oftener, if it is, as it should be, offered them. Attention is usually first aroused by the fretfulness of the child, a moderate rise of temperature and pulse, a hot, dry skin, and constant desire to suck. If a free supply of water be given, and nursing restricted in frequency, these symptoms will often disappear completely and quickly, but if not, collapse will soon come on. The temperature ranges from 105° to 106° Fahr., or higher; the pulse is small and thready, numbering from 180 to 200; the skin of the body is painfully hot, while the extremities are cold; the features are pinched and sunken, with the eyes half closed and the pupils contracted; the fontanelle is depressed, the hands are tightly shut, the respiration is hurried and irregular, and consciousness seems abolished. A child in this state will swallow water with greediness and the utmost pleasure. The treatment adopted at the Nursery has been wrapping the patient in a wet sheet, applying cold to the head, and giving as much water as can be swallowed. The results have been very satisfactory, the child becoming quiet, and even going to sleep, while all the threatening symptoms rapidly subside. The attention given to this point as a preventive measure has been followed by a diminished rate of mortality, and a marked reduction in the number of stomach and intestinal complaints. If more care was taken to give children a proper amount of water, and restricting their hours of sucking or feeding, the mortality due to hot weather would decrease, and less would be heard about the troubles of teething.—*Medical Times.*

* * *

The Assembly-Headache.—This term should suffice to cover the various forms of "headache," so called, which are apt to occur in assemblies, whether at theatres, exhibitions, picture-galleries, or in crowds of any kind. It is the common belief that these affections are due to a vitiated atmosphere, and doubtless in many cases they are properly referred to this cause. Meanwhile, it is impossible to disguise the fact that nearly, if not quite, as many headaches are caused by the excitement of a concourse or by strain on some one or more of the special senses, as by a vitiated atmosphere. Like every other good idea, that of a "carbonised and deoxygenated atmosphere" is capable of being exaggerated and distorted. We have not a word to say in apology for the neglect of ventilation. The worst features of this fault have not yet been brought fully to view and impressed on public attention, as the conditions require they should be. We are, however, for the moment chiefly anxious to point out that there are other causes of "headache" besides the defect of oxygen or excess of carbonic acid in the atmosphere breathed at an assembly. We know, though it is not perhaps generally recognised, that headaches are almost as commonly produced by crowding and "sights" in the open air as in close buildings. An assembly on Lord's Cricket Ground, at Lillie Bridge or Hurlingham, or at one of Her Majesty's Drawing Rooms—where draughts abound—may be as prolific of headaches as a crowded night at the opera, the first night of a new play at a popular theatre, or the private view at a picture gallery. In short, we must take into account the several disturbing and exciting causes of headache, such as nerve excitation, either through one or more of the sense organs, as the eye or the ear, or both, by the so-called "muscular sense," or, more accurately, by the sensory nerves supplied to the muscles, by which their control and co-ordination are, to some extent, affected. No one can tax the nervous centres severely, by looking at pictures or any "sight," can listen long to music or elocution, can stand about, or walk, without setting up an amount of encephalic disturbance which can scarcely fail to produce headache, either frontal, bregmatic, occipital, or parietal. It would sometimes seem as if this were forgotten in the eagerness of our denunciation of the admitted evils of defective ventilation. We venture to urge that some care should be bestowed on these matters, and that the eyes, the ears, and the muscles generally should be rested for a short time at least once or twice during every lengthened performance. There ought to be retiring-rooms for use at all assemblies, and in them the light should be shaded and silence prevail. A crowded corridor or "refreshment-room" affords no relief; nor is it any use to retire into a rattle of conversation. Relief should include *rest* in the case of all except the very robust, and even such persons would be the better for an occasional respite from excitement in the course of a long entertainment. Apart from the drawback of bad ventilation, our "assemblies," public and private, are generally too exhausting.—*Lancet.*

Recreation and Health

"Health is the vital principle of bliss,
And Exercise of health."—*Thomson.*

HEALTH AND HOLIDAYS.

FOREIGN HEALTH-RESORTS.—III.

BY A PHYSICIAN.

Bagnères de Luchon.—Situated, like the last-named health-resort, in the Pyrenees, close to the Spanish frontier, at a distance of forty miles from Bagnères de Bigorre, 2,000 feet above the level of the sea. It is a far more fashionable resort, however, than the town previously mentioned, and consequently much more expensive—indeed, in its life and gaiety and pleasure-loving characteristics, it may be said to bear a strong resemblance to Baden-Baden. Much of its attractiveness is no doubt due to the great beauty of its natural advantages. A small town of rather more than 4,000 inhabitants, it is situated at the westerly end of a most beautiful valley, the slopes of which, and the mountains which hem it in on all sides, are thickly wooded with trees, while in the back-ground rise still higher rocky peaks that in their grandeur and misty vagueness give distance and wonderful shadowy colouring to the scene. The accommodation for visitors, too, is far superior to that afforded at most of the Pyrenean Spas—which, as a whole, are not remarkable for any great excess of cleanliness—and the thermal establishment is one of the most complete in France. The waters—sodio-sulphuretted and ferruginous—are successfully employed in many forms of skin disease, such as chronic eczema, impetigo, psoriasis, and acne; also in scrofulous affections, chronic bronchitis, chronic pulmonary catarrh, and obstinate, long-standing cases of rheumatism; and in various female complaints, usually of an hysterical nature. The climate in May, June, and September is mild, though invigorating, but in July and August it is liable to become close and oppressive. The drives in the vicinity are exceedingly lovely, but for pedestrian exercise it is unsuited, being for the most part uphill; and though carriages are nice enough in their way, they are apt, in the hire of them, after a time, to become expensive. The charge for a guide is five francs per day, with his food. Hotels: Grand Hôtel Richelieu, Grand Hôtel du Parc, Grand Hôtel du Casino, Hôtel de France, Bonne Maison, &c. Fares from London (Victoria or Charing-cross) *viâ* Calais, Paris, Orleans, and Toulouse, £7. 6s., £5. 10s.

Bagnoles de l'Orne.—A village in Normandy, about 15½ miles from Alençon. For close upon two centuries it has enjoyed a high, though not very widespread, reputation for its sulphur and chalybeate waters. The springs are three in number. There is a fairly well-appointed establishment, consisting of forty private bath-rooms, two large swimming baths, douches, and other means of treatment. In cases of hysteria, chorea, enlarged joints, palpitation of the heart, spasms, and certain varieties of skin disease, these waters have proved highly beneficial. Hotels: Grand Hôtel des Bains, Hôtel de Bagnoles, Hôtel St. Lucile. Fares from London (Victoria or Charing-cross), *viâ* Calais, Paris, Briouze, and La Ferté-Mace (about), £4. 4s., £3. 3s.

Balaruc.—A small spa in the south of France, situated on Lake Thau, about sixteen miles south-west of Montpellier, and two and a half from Cauterets. The chief form of complaint for which the Balaruc waters are celebrated is partial paralysis of a chronic nature, for the treatment of which they have acquired quite an exclusive reputation, but they are also useful in rheumatism, sciatica, and a variety of other diseases. Balaruc is an exceedingly quiet place, and the means of recreation are few. Visitors should therefore go well provided with amusements of their own, and an ample stock of good spirits—we mean cheerful thoughts.

Barèges.—By a curious coincidence, after speaking of the necessity, in visiting some health-resorts, of a cheerful temperament, we come to this, the most dreary of all places. Barèges consists of one long street, numbering, perhaps, a hundred houses, of neither a very enlivening nor particularly aristocratic appearance, and it gives the visitor the impression that the inhabitants are of a varied turn of mind, and differ about nothing so much as the nature of their habitations. It is built on the margin of a mountain torrent or *gave*, the Bastan, at an altitude of 4,200 feet above the level of the sea, and, as a health-resort simply, it is undoubtedly the most celebrated of all the Pryenean spas; but there the matter ends. Its social attractions are practically *nil;* and as nobody but a thorough invalid would resort to such a miserable spot, the aspect of the town, in addition to the disorderly, miscellaneous character of its dwellings, may easily be imagined. Almost every being one meets is either on crutches, or in a sedan-chair, or muffled up in a huge military cloak, or hobbling along in some form or other. But it certainly speaks volumes in favour of the waters when so many people are found to take them under these dismal surroundings; and that there are many may be judged from the fact that in July and August the place is so crowded that patients often have to wait their turns at the neighbouring town of Luz until they can be taken in. The Barèges waters are particularly rich in sulphur, and contain that peculiar nitrogenous substance, to be found in all the sulphurous waters of the Pyrenees, termed *Barègine*. They are especially beneficial in the treatment of old gunshot wounds and other injuries received on a field of battle—indeed, in consequence of their efficacy, a military hospital was erected at Barèges in 1760—and they are also employed with advantage in cases of scrofula, chronic rheumatism of the joints, old sprains, and certain forms of paralysis. The climate is exceedingly changeable, being sometimes very hot, at other times just as bitterly cold; and it is much influenced by damp, chilly mists from the surrounding mountains, which often settle over the village, and violent, tempestuous winds. Hotels: Hôtel de France, Hôtel de l'Europe, Hôtel des Princes. Route: London (Charing-cross or Victoria) to Paris, *viâ* Calais—or Dieppe—then on to Bordeaux, Dax, and Pau, in the order named, and from Pau to Pierrefitte-Nestalas, thence by diligence to Barèges. Fares (about), £7. 7s., £5. 12s. Taking the boat from Newhaven to Dieppe makes the journey about 22s. and 18s. cheaper.

Biarritz.—A very popular watering-place on the west coast of France, six miles from Bayonne. Population 8,000. It is both a summer and winter resort. In many respects it may be compared to Arcachon, but lying exposed to the full force of the Atlantic winds, without any protection such as the latter town possesses, the climate is more bracing and hardly so mild. The best time of the year for consumptive patients to visit Biarritz is the autumn, since in the winter and spring, in consequence of the heavy rainfall, it is usually too damp; and, moreover, at these seasons of the year the temperature is often exceedingly changeable, and severe storms take place; but for our own part we should scarcely recommend the consumptive patient to Biarritz at all, but prefer Arcachon. The class of complaint for which the climate of Biarritz undoubtedly will do good is the dyspeptic, where the symptoms are those of

great nervous irritability; it is also well suited to many chronic affections. The bathing at Biarritz is extremely good, and in the summer months most extensively indulged in. Hotels:—Hôtel d'Angleterre, Hôtel des Princes, Hôtel de Paris, Hôtel de France, &c. Fares from London (Victoria or Charing Cross) *viâ* Calais, Paris, Bordeaux, and Bayonne, £6. 19s., £5. 4s. Steamer to Bordeaux (from London) £3, £2; return, £5, £3. 6s. 8d.; (from Liverpool), £5. 12s. 6d., £3. 6s. 8d., £2. 1s. 8d.; also from the latter place (by Moss Steamship Company) £4.

Bingen.—A place that ought surely to be loved by the Vegetarians, since it is celebrated for its grape-cure establishments. This "cure" simply consists in eating a large quantity of grapes—sometimes as many as twelve pounds a day—under the supervision of a physician. It is said to be of much service in cases of dyspepsia, jaundice, and abdominal congestion. Bingen is situated in Rhinish Prussia, about twenty-five miles from Mayence. It is a town numbering some 7,000 inhabitants. Hotels: Hôtel du Cheval Blanc, Hôtel de Belle Vue, Hôtel Victoria. Fares from London, *viâ* Calais, Brussels, and Cologne (about), first class, £4; second class, £3. 2s. 6d.

Bordighera.—A town on the Western Riviera, ten miles from Mentone. It is the only health-resort along this coast that is built on a promontory, and it is naturally, therefore, much exposed to the south, south-east, and south-west winds; to the north it is protected by a low range of hills. The town is divided into two portions—an old and a new. The old portion of Bordighera is situated partly on the promontory itself, commanding a fine view of the coast westward, and it lies higher than the new, which occupies a broad level tract of land in the direction of the Italian frontier town Ventimiglia, between the hills and the sea shore. This plain, densely covered with olive and lemon groves—for which Bordighera is remarkable—is intersected, as it were, by the main carriage road, along the sides of which, in a somewhat straggling fashion, the new town is built. Bordighera is also selected for its palm-groves. Of the climate, owing to insufficient observation having been taken, it is not very easy to speak. Of one thing, however, we may be certain, that its exposure to the sea breezes will tend to make it cooler than the neighbouring health-resorts during the hot months, and it should therefore be a suitable locality for those who desire to avoid the increased heat of the spring at the other places. Its mean temperature differs very little from that of Cannes or Nice, but it is probably colder in the winter months—with the exception, perhaps, of January—than at either of these places. It is especially suitable for invalids who want *sea* air; for consumptives of a scrofulous tendency, especially at an early stage; for cases of bronchial catarrh, and of convalescence from acute diseases; and in many other forms of constitutional weakness. Population, 3,400. Hotels: Grand Hôtel Bordighera; Hôtel and Pension Windsor; Hôtel d'Angleterre; Hôtel Beau Rivage, &c. Fares from London, *viâ* Paris, Marseilles, and Ventimille (about), first class, £8. 12s.; second class, £6. 9s.

In 1772-3-4, Captain Cook proved that, by sanitary measures, especially by ventilation that prevented dampness, with early attention to the sure means of subduing the nascent scorbutic diathesis, by visiting places where fresh animal and vegetable diet was attainable, the fatal type of the disease was not established; but it must be remembered that he sailed in the tropics, and not in the Arctic regions, where the conditions of life are totally different, where fresh fruit and vegetables are unseen, and fresh animal food is at the best an uncertainty.

Our Bookshelf

"Reading maketh a full man."—*Bacon.*

LITERARY JOTTINGS.

Health Studies. By H. Sinclair Paterson, M.D. (London: Hodder & Stoughton. 1884.)—We presume the eight essays included in this book were originally delivered as popular lectures—at least the style of the papers here presented suggests the lecture form. The volume will be perused, on the whole, with advantage by all who desire plainly conveyed knowledge respecting such topics as "Food and Appetite," "Rest and Sleep," "Disease Germs," &c. There is a didactic vein throughout the book which, like the frequent interpolation of theology, strikes us as somewhat out of place in a volume of essays ostensibly devoted to the inculcation of physiological facts and health-teachings. There is a time and place for all things, and it is seldom that the office of the pulpit can be usefully united to that of the scientific instructor. The truths and facts of science, properly expounded, have a dignity and a morality of their own which require no "applications" of the kind Dr. Paterson is so fond of introducing. We regret that he has thought it necessary to introduce so much of the theological element into these essays, because he writes in a manly tone, and because his subjects require no such applications as he is intent on bringing under the reader's notice. The essay on "Fastness," despite the objections we have taken to the author's style, is an honest and earnest attempt to deal with deep-rooted sources of social misery.

(1) *Homely Hints on Health.* By Mrs. W. T. Greenup. (2) *Fifty Things to be Remembered in the Nursery,* and (3) *Fifty Things to be Remembered for the Sake of Health.* (London: Marcus Ward & Co. 1884).—This volume is, on the whole, a sensibly-written manual of common health-knowledge. Mrs. Greenup does not tell us anything new, but she places familiar facts in an attractive light, and that this is always a gain to the cause of education goes without saying. In the section of this work dealing with "Food," the authoress does not include *water* in her list of foods; this alone being an important omission, seeing that water is, of all foods, probably that most neglected and that most important. Again, to classify foods, as does Mrs. Greenup, into "heat' giving" and "flesh forming" substances, is scarcely to keep pace with the times. That the so-called "heat-producing" foods may produce both fat and flesh is now a well-known fact, just as, conversely, fat may be manufactured in the bodily economy, from the so-called "flesh-forming" foods. Again, to tell readers that mineral matters are supplied by "potatoes, all green vegetables, bread," &c., is to induce the belief in those unacquainted with physiology, that from such foods we gain nothing save minerals, whereas the foods in question supply us with many of our bodily constituents, in addition to mineral matters. In the section on "waiting for the doctor," it would have been well had Mrs. Greenup omitted the passage wherein she says that "experience has taught us the value of a few simple homœopathic medicines, which we keep in our drawer—camphor, aconite, belladonna, and nux-vomica" being samples of the "simple" medicines in question. As, however, Mrs. Greenup appears to rely as strongly on allopathic remedies, her mention of homœopathic drugs may be excused. It would have, however, been more to the purpose had the authoress omitted these references. Readers are not likely to become homœpathically inclined from Mrs. Greenup's

pages. On the whole, this little volume may safely enough be placed in the hands of all who desire a knowledge of the rudiments of domestic economy. In the case of senior girls at school, Mrs. Greenup's manual is likely to be useful. The "Fifty Things" desirable of remembrance are printed in the form of cards suitable for hanging in the nursery and elsewhere. We are sceptical of the good which trite maxims thus exhibited may effect; but their remembrance, if they can be kept in mind at all, will do no harm, and in placard form, the maxims collated by Mrs. Greenup may appeal to many minds which refuse instruction of more decided kind. The cost of these cards—threepence each—places them within easy reach of the masses.

Health at School. By ALFRED CARPENTER, M.D. (London: Joseph Hughes, Pilgrim-street, Ludgate-hill.)—This is a most acceptable book, and one which not teachers alone, but parents and all interested in the care of boys and girls will do well to peruse with care. In the course of eight chapters, devoted to such topics as the "Life" of the school, "Drainage," "Water Supply," "Ventilation," "Dormitories," and "Physical Exercise," Dr. Carpenter passes in review most of the cardinal points involved in successful school management from the sanitarian's point of view. In the hands of so eminent an authority on hygiene as is Dr. Carpenter, there is little need to add that the topics are presented to the reader with a fulness of information and a maturity of judgment which constitute the highest charms of the book before us. The author is not merely contented with placing the results of hygienic investigation before his readers; he traces the groundwork on which the inferences he draws are founded. This practice of bringing the reader face to face with the details of sanitation, is well illustrated in the chapters on "Ventilation" and "Physical Exercise," while the sections on "Warming" and "Lighting" are treated in the same practical fashion. As a guide to the sanitary regulation of the school in all its bearings — moral as well as physical — Dr. Carpenter's manual is the best we have seen. Its price—one shilling—should commend it to the notice of teachers in every rank of life.

The Patient's Vade Mecum. By WILLIAM KNIGHT, M.R.C.S., & EDWARD KNIGHT, L.R.C.P. (London: Chatto & Windus. 1884.)—This little work has been written, as the authors tell us, in the hope of interesting patients in their ailments to the extent of being thereby enabled to assist the work of the doctor through giving an intelligent account of their symptoms and progress. Doubtless, little inducement is needed to interest most patients in their ailments, and in the means taken for their recovery and cure. But what the authors of this *brochure* aim at is the cultivated observation of the symptoms presented by disease, and the intelligent appreciation, on the part of patients, of the purport of the signs and warnings in question. To this end a certain amount of technical knowledge is necessary—we had almost said, "cultivated common-sense" is the faculty in patients which most effectually assists doctors in their labours as sick-attendants. The amount of information requisite to make a patient familiar with the leading principles on which medical treatment is based, is to be found in the work before us. Without trenching on the sphere of the physician, the authors have been able to give a large amount of information concerning the leading features of disease, diet, and treatment. The work is not a guide to medicine, but a text-book for patients, showing them the value of their own observations in aiding the doctor's work. There is nothing morbid or exaggerated in the volume; and even those who are hale and well may find much information of a useful kind in its pages.

Messrs. CASSELL send us Part 3 of the *Book of Health*, a periodical the advantages and worth of which have been more than once referred to in our columns. The present number, dealing with food and its uses, is replete with interest. Part 3 of Messrs. Cassell's *Household Guide* is also to hand, containing the serial issue of this useful periodical. *Popular Gardening* continues its successful career in monthly parts, the professional and amateur horticulturist being equally appealed to in its pages. Dr. Robert Brown's successful *Countries of the World* reaches its second part with the present month, and contains a vast amount of information of a highly interesting and reliable nature.

Sanitary Appliances, Etc.

HARTMANN'S "WOOD WOOL" PREPARATIONS.

THE progress of invention has of late been singularly rapid in surgical quarters, both in the direction of preventing disease and in favouring the healing of wounds. Carbolic dressings, boracic lint, and similar appliances as applications to wounds, have met with the high appreciation of surgeons; but the "wood wool" of Paul Hartmann, sold by Messrs. Essinger and Neuberger, of 11, Hatton-garden, London, E.C., bids fair to rank above other dressings as an application to wounds and for ambulance and household purposes. As a handy application to cuts of all kinds or to burns, the "wood wool" should come into high popularity in the domestic circle. The material itself is white in colour, of beautifully soft consistence, and well adapted to absorb fluids of all kinds. Indeed, it is this power of absorption, in addition to its perfect pliability, rendering it capable of adaptation to all surfaces, which gives it a high value in surgery and in all other departments of the healing art. As has well been remarked by an authority:—

"Wood wool possesses in itself, owing to the presence of resinous matter and etheric oil, certain antiseptic properties. A great feature in it is that thinner layers are required than of any other material, and, through its flexibility, a thoroughly compact and even pressure can be obtained. The principal advantage, however, consists in its great capacity for absorption, in which respect it is again superior to all other dressing materials. Wood wool will absorb twelve times its own weight of fluid, so that 10 grammes of the dry material, after complete saturation, weigh 130 grammes. Now, ordinary wood-shavings absorb from three to four and a half times their own weight (10: 40—55); ashes, only $\frac{2}{10}$ (10: 19); and sand, $\frac{4}{10}$ (10: 14). Next to wood wool is sphagnum (dried moss), and then Neuber's peat, the first absorbing twelve times and the latter eight times their own weight. But in these last two materials there is the great drawback that they must be prepared for use by being moistened. Neuber himself says that his peat, before being used, should contain from 80 to 90 per cent. of moisture, otherwise its readiness for absorption is diminished. Consequently, these materials lose nearly one-half of their absorbing power, while, on the contrary, wood wool, in its absolutely dry state, completely and rapidly absorbs the discharge from the affected part.

"This great absorbing power in a dressing material cannot, I am becoming more and more convinced, be too highly appreciated, because the regular healing of the wound without irritation will succeed much better the more completely the secretions are removed from the wound—that is to say, the more the wound and its neighbourhood are kept dry—and further, because, by this means, decomposition is effectually prevented. After the dressing has absorbed the secretions of the first few days, it is essential that there should be a quick evaporation and drying up of the moisture. With Wood Wool this is easily secured, owing, firstly, to its absorbing capacity, and secondly, to the nature of the material and the manner in which it is applied. The dressing having become dry, it can remain on the wound any length of time. Thus it is necessary to leave off entirely the outer air-tight layer, which is prescribed in the typical dressing of Sir Joseph Lister, otherwise the drying of the dressing will be prevented. For the same purpose I also prefer to cover a sewn-up wound with Glass Wool instead of the 'Protective,' as with the latter the suture will necessarily be kept moist. In short, the dressing put on a fresh wound should *absorb* completely and *dry* again rapidly, thus forming the 'Dry Dressing' of English surgeons—*the two great essentials of a good dressing material being that it should be dry and need seldom changing.*"

The "Wood Wool" possesses these properties in a perfect degree, and hence, in the practice of surgery and for ordinary household use, this substance bids fair to take an unrivalled place as a dressing.

In the form of "Hygienic Wood Wool Diapers" this material is also likely to prove eminently useful and satisfactory. Over all other forms of these articles, those made of "Wood Wool" satisfy every sanitary requirement. They are dry, soft and cool, and highly absorbent, and after use merely require to be burnt; while their cheapness is another feature likely to recommend them to public favour. From the disinfective character of the wool likewise, a high advantage is likely to be gained in every respect through the use of these articles. The recommendation of an eminent physician, on whose suggestion the manufacture of these diapers has been carried out and perfected, will, we are certain, prove highly beneficial in the domestic circle.

Our Letter : Box

"Conference [maketh] a ready man."—*Bacon.*

NOTICES TO CORRESPONDENTS.

All Communications for the Editorial Department (including specimens of Sanitary Appliances, &c.), to be addressed to "The Editor of Health," 74-76, *Great Queen-street, London, W.C. Those intended for the Publishing Office to be sent to* "The Publisher," *at the same address.*

Contributors are requested to send stamps for the return of the MSS. *in event of non-acceptance. Every care will be taken to ensure the safety of* MSS., *but the* Editor *and* Publishers *cannot hold themselves responsible for accidental loss.*

Correspondents are requested to write on one side of the paper only. The Editor *disclaims responsibility for the opinions expressed by Correspondents.*

QUERIES AND ANSWERS.

We would direct the attention of our correspondents to the fact that, owing to the necessity for sending Health to press early in the week, answers to queries cannot, as a rule, appear in the succeeding number of the journal. Every effort is made to secure punctuality in the replies, but we must ask the occasional indulgence of our readers, owing to the large amount of correspondence, which requires assortment and reply.

GENERAL.

Caleb.—The *Trichina* is quite a different worm from the tapeworm (or *Tænia*); the former is a small worm coiled up within a cyst, and found imbedded in the muscles.

Ajax.—About 17s. 6d. or 18s. we think—certainly not more.

T. C.—You will find the book you require in Messrs. Macmillan's list.

C. Jackson.—The Sanitary Paper Company's manufacture is that to which you allude. See the advertising columns of Health.

Scarbro'.—The electrical belt is thoroughly genuine, and you may try it with every reasonable hope that it will do good. You must not confound electric belts advertised in Health with those commonly sold. We have made it our business to test those advertised in our pages, and to assure ourselves of their genuine character. In accordance with our desire and intention, that no false or spurious articles shall be advertised in our pages, we have adopted the plan of insisting on thorough and scientific examination of these belts. It would surprise you, could you know the many tempting offers we have from time to time received (and which, of course, we have invariably refused) to admit quack preparations and other articles, artfully designed to mislead the public, to our advertising columns. Where, as in our case, a journal professes to instruct the public in health-laws, it would be worse than absurd were we to cease exercising diligent control over our advertising pages.

G. A. N.—Apply to the patentees. They alone can arrange with you as you desire.

Abacus.—See the "Memory" paper in the last number of Health.

J. A.—You evidently mean Ambrose Paré, the famous surgeon of old, and inventor of the ligature.

Eleanor Price.—No; the lotion you send contains lead, and is therefore unsafe to use.

Ibrox.—Try Rothesay, as it is near you.

J. Ballantyne.—We should give the calf-lymph a trial. See our advertising pages for source where it may be obtained.

Paul.—Not suitable, thanks, for Health.

J. Taylor.—The address of the "Cremation Society of England" is 11, Argyll-street, Regent-street, London, W. Write to the secretary, who will give you all information on the subject.

SANITARY.

Pleb.—To test for arsenic in wall-papers, dissolve some of the suspected colour of the paper in a little hydroxide of ammonium; pour the solution thus made on a piece of glass, and add to the liquid a crystal of nitrate of silver. If arsenic be present, a yellow colour near and on the silver crystal, will be found.

Dairyman.—The specific gravity of milk varies from 10·28 to 10·32. Letheby gives genuine milk as having a sp. gravity of 10·30, cream (percentage vol.), 12·0; and sp. gravity skimmed, 10·32. With 10 per cent. water added the sp. gravity of the milk is 10·27; cream 10·5, and skimmed 10·29, and so on in proportion.

B. A.—1. A ton of earth averages 21 cubic feet. 2. Mercury freezes at −40·0 Fahrenheit, and −40·0 Centigrade water; at 32·0 Fahrenheit, and 0·0 Centigrade. 3. Not at present.

Andrew Stoner.—See Section 118 of the Act in question.

Interested.—Canal Boats Act, 1877 (40 & 41 Vict. c. 60.)

C. A.—The authority quoted was the late Dr. Angus Smith.

J. S. P.—With plenty of ventilation, such as you describe as existing in your office, a gas-stove could do no harm. Gas-warming is as safe as ordinary heating, provided you have efficient ventilation, and in your case, with a chimney-ventilator and the other means, you seem to be well provided. No harm in trying the pan of water on stove, if the moisture given off is not excessive.

MEDICAL.

S. Flicker.—Attend to your general health, and try the sulphide of lime powders prescribed to "T. H.," in Health No. 64.

J. C.—Use the hair lotion recommended to "Barum," in Health No. 64, and take ten drops *Fer Bravais* in water thrice daily between meals. Look to your health, and avoid overwork. Such symptoms as those you name usually arise from overwork.

Elderly.—What you name is often a sign of stomach disorder, which, in its turn, may cause a little irritability of the heart. See to your digestion, and avoid suppers and over-exertion; and if a smoker, try to discontinue the habit. Take for a short time the tonic recommended to "Espérer" in No. 64 Health, and let us hear how you are in a week or two.

Asthma.—As far as we can see, the preparation of which you send a sample consists simply of camphor. The vomiting it caused no doubt relieved the asthma; this is a common experience of stomach reacting upon lungs. Have you ever tried soaking white blotting-paper in a solution of saltpetre (use one drachm of nitrate of potash to one ounce of water as a solution for this purpose), drying the paper thereafter, and, when the attack comes on, lighting a piece, say three inches long and one inch broad, and allowing the patient to inhale the fumes? This might be tried, using one or two pieces of paper for an inhalation; it often acts with good effect. The digestion, above all, should be carefully looked to, as attacks of asthma often date from a disordered stomach. A little ipecacuanha wine might be given when there is great difficulty in bringing up the phlegm. Inhalations should also be tried. Glad to recommend a physician if desired.

Exeter.—No need to be alarmed. See and follow advice to "Espérer" in Health No. 64. Attend strictly to your digestion, and avoid stimulants. What you name should cause no uneasiness, and is not unhealthy unless excessive in nature.

Moss.—Yes; it is possible such a corset might suit you. Consult a reliable surgical instrument-maker; but you might also see what a course of gymnastics, practised in the evenings, would do for you. You have a splendid gymnasium in Liverpool. Apply there.

W. Robson.—What you describe is by no means uncommon, and arises simply from a little nervousness and over-anxiety, produced possibly by business worries, or by your troubling. There is no need to be alarmed. Try cold sponging each morning, and simply attend to your general health. All will come right. A trial of the tonic recommended to "Göttinger," in Health No. 65, would also be of service to you.

J. E. L. (Portsmouth).—You are mistaken as regards the nature of the secretion you name. It is of no consequence. Attend to your diet, and eat fruits and vegetables by way of avoiding constipation, which is at the root of your troubles.

J. W. Edwards.—You are simply in a highly nervous state, and our best advice to you is to give up troubling and worrying yourself over a matter which, we have already told you, is of no conse-

quence, and over an idea which is, on your part, a mistaken one. The remark made in the case of "J. E. L." above, applies to you. Simply use cold sponging, attend to your general health, and divert your thoughts into healthy channels. You require no other means or aid of cure. Pulvermacher's belts are frequently recommended in these columns as genuine in character. If you read our replies carefully you would have noticed our commendation of them.

Lillian.—The patient requires a change to the seaside and *Fer Bravais* (fifteen drops thrice daily, between meals, in water). Visit Morecambe (which is near you) or Rhyl. Complete rest by the sea will benefit her.

Mr. Rose.—Yours seems to be an obstinate case of waterbrash; and if bismuth tablets or compound kino powder do not relieve you (either or both should be tried), we should recommend you to undergo a thorough medical examination. Pullna or Friedrichshall water (in the morning) should also be tried. Remember that waterbrash may be a symptom of more serious complaints, and, if not benefited as above, consult a competent physician. Of course, you are looking well to your diet, and avoiding tea, coffee, and liquors, and generally supervising your food, which should be very light and taken in small quantities.

Sorry.—1. No fear at all. Simply attend to general health, use cold sponging each morning, if it agrees with you, and, for a time, take half doses (half a teaspoonful) of the tonic recommended to "Göttingen" in No. 65 Health. 2. No; the structure named is of no importance. Attend strictly to cleanliness, of course. 3. Yes; remember the golden rule, "moderation in all things." Take complete rest from your duties for a while. We would like to add, you must not be in too great a hurry in respect of the result desired.

R. S. O.—From the medical opinion you had, it is clear that while you may have no actual lung trouble, you should always exercise great care in avoiding chills, &c. We should recommend you to try a course of cod-liver oil cream (*e.g.*, that of Mr. Thomson, chemist, Dublin-street, Edinburgh, would suit you well) as a general restorative and tonic. It is probable such treatment may obviate the symptom of which you complain. Let us hear how you are after a trial of this advice. Your increase in weight is a good sign.

E. M. P.—Try the effect of taking fifteen drops *Fer Bravais*, thrice daily, in water, between meals. As a lotion, apply a little of the following when the itching is severe:—Bicarbonate of soda, one drachm; glycerine, an ounce and a half. Mix; and label: "The lotion—for outward use." Glad to be of any further service.

Ada.—You would probably benefit from the *Fer Bravais* ordered to "E. M. P." above. Try gargling with a little sulphur*ous* acid (*not* sulphur*ic*); a teaspoonful of the sulphurous acid being added, say, to a tumbler of cold water, and used as a gargle twice or thrice daily. You need have no fear of goître, which arises from impure water. If the above gargle does not do good, have the throat painted internally with tannin and glycerine; half an ounce of tannin added to four ounces of glycerine, makes a good mixture for this purpose.

South Africa.—You should have the child's eyes thoroughly examined by a competent oculist, if such advice can be procured in the district you name. The irritated feeling arises probably from congestion of the eyelid or eyeball. Cold-water bathing (with an eye-glass) might be of service; but a professional opinion is necessary to fully relieve your mind.

Demosthenes.—Use strict cleanliness and use a lotion consisting of one part Hazeline added to three parts water thrice daily. At night apply pure Vaseline. Continue the cold bathing. Let us hear how you are in a few weeks' time. Don't be anxious; there is nothing seriously wrong.

J. M. K. (Glasgow).—1. The leaflet you enclose is the production of a well-known quack firm. Have nothing whatever to do with them if you value health (and purse). 2. We agree with the medical opinion you had regarding what you complain of. You require no drugs, and when you are now told that you are free from all disease we hope you will occupy your mind with healthy thoughts. Use cold sponging each morning, food to be light; take open-air exercise and avoid stimulants of all kinds.

Urgent.—See to your digestion. Rest after meals is essential; take Pepsine after your food, as an aid to digestion; and eat fruits and vegetable. Avoid suppers and stimulants. For the skin trouble, press out the black spots (which are filled-up skin-glands), wash with soft, tepid water, use brisk friction to the skin thereafter, and then sponge the face with Rimmel's Toilet Vinegar or Eau de Cologne. Your circulation is apparently defective. Take more open-air exercise, and have hot baths twice a week at least.

W. Scott.—You suffer from a slight form of skin-disease. Wash the head frequently with tepid water and carbolic soap, and rub in Vaseline at night, for a few nights, so as to loosen the scales; then afterwards use borax and glycerine (as recommended to "Barum," in Health No. 64) as a lotion to the head, to be applied night and morning. If not successful, write again. A change of air would do you good. Try the seaside for ten days or so, and take *Fer Bravais*, as ordered to "E. M. P." in present number of Health. Your system requires toning.

Electrician.—Try the soda and glycerine lotion recommended to "E. M. P." in present number of Health, as an application to relieve the itching. Use Pixene soap as an ordinary washing soap to the irritated limbs, and for a time take the tonic recommended to "Göttingen," in Health, No. 65. In such cases, the use of a tonic often cures such a disorder as that you complain of. If not bettered, write again.

Nerveless.—A "shaky hand" is often a constitutional affection, and may be inherited as part of a nervous constitution. All we can advise you to do is to see that you do not overstrain or overwork yourself. If you are overworked, such strain will show itself probably in an increase of your affection. Attend to your general health, of course; and you might, besides, try the effect of electrical applications to the arms and hands, such as an ordinary galvanic machine will afford.

Sleepy.—You suffer from indigestion of a slight kind. See advice to "Urgent" above, as regards food. Rest after your meals, and try for a time the tonic recommended to "Göttingen" in Health No. 65. If you are not overworked (in which case the remedy is clear—namely, work less) the tonic will invigorate you.

W. D.—Tell your friend to be wise in time and to save his guinea. The whole proceedings of the person you name are simply those of an ordinary quack—the tone of his advertisements alone proves this. Let your friend invest a shilling in the pamphlet on Consumption (published by Dr. Dale), and he will find a guinea's worth of sound advice therein contained.

Cantab.—No need for any treatment at all in your case. What you name is perfectly natural in most robust persons. Don't let anyone persuade you to the contrary, and, above all, steer clear of quacks. You are quite well, and, with ordinary attention to health, will remain so.

M. L. C.—Don't be foolish or morbid. See reply to "Cantab" above; and also follow advice to "Espérer," in Health No. 64. The cold sponging each morning, and sleeping on a hard mattress, will do you good. You are in perfectly good health. Don't let anyone persuade you otherwise.

R. Scopes.—We think yours is a case for trial of a vegetable dietary. We have seen much good follow in cases like yours from such a complete change of diet. Of course, with such a change of food, you must not neglect ordinary health rules. See that you are not overworked in any way, and try Pepsine with your food as you were ordered. Persevere with these remedies, and give vegetarianism a fair trial. If not bettered, write again. We shall be glad to help you at all times.

Fitz James.—Have nothing whatever to do with the "invention," particulars of which you enclose, or with the "inventor," who is one of the worst of London quacks. See and follow advice to "Eton" in Health No. 63. By attending to these directions you will soon regain your health. Above all, beware of quacks. Only a little care is necessary to fully restore you.

Schüssler.—You should procure the pamphlet by Dr. Schüssler (to be had of Messrs. Newbery & Sons, we believe), and read what he says therein about the cell salts proper for growth. The "salt" you obtained is certainly one of Dr. Schüssler's. These minerals are sold in boxes of the kind you describe. In justice to Dr. Schüssler's treatment, you should familiarize yourself with what he himself says regarding it.

Sanitas.—You must re-state your case. We do not preserve the letters of our correspondents. What is the special "nuisance" of which you complain?

Delta.—We fancy Cassell's "Family Physician," or the "Household Medicine," by Dr. Gardner (published by Smith, Elder, & Co.), would suit you. There is no special treatise on gout such as a layman would understand; but in either of the above works you will find full information regarding foods and treatment. Glad to assist in any other way possible.

Spes.—You have simply been made unduly nervous by foolish notions regarding the assumed cause of your ailments. Your occupation, being sedentary, is against you, no doubt. Our advice to you is to take more open-air exercise; cold-sponging each morning, if it agrees with you; a little cod-liver oil (or the cod-oil emulsion), a dessert-spoonful thrice daily after food; and when your holiday season comes on, go to a bracing East-coast resort (*e.g.*, Yarmouth). Eat plenty of fruits and vegetables, and avoid late suppers.

Chaïba.—See reply to "Sinclair," in Health No. 64. The belt in question is perfectly genuine, and was duly tested by Mr. Carpenter for Health. You may depend upon our continuing the same rigorous supervision of our advertising pages which has been practised since the advent of Health.

[*Continued on page* 224.

LINCOLNSHIRE FEATHER BEDS.

Direct from Boston, Lincolnshire. Great Reduction in price to 9d. per lb.

MESSRS. H. NEWHAM & Co. are now offering their celebrated Feather Beds at the following greatly reduced prices:—

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CAUTION.—We do not buy to sell again as others do, but sell direct from our own Factory. All Orders must be accompanied by Cheque or P.O.O. We have no London Agent. All goods are sent direct from

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GREAT SALE OF HEARTHRUGS.

TWO years ago we determined to offer our Special Hearthrugs, 72 in. long by 36 in. wide, at 3s. 9d. each, carriage paid to any address. Since that time we have sold over 50,000 of these Hearthrugs, which is in itself a testimony to the value we offer the public. In addition to this we have had repeated orders and testimonials almost every day. No part of the United Kingdom is too distant, and no village, or hamlet, or home too remote for us to send to. We have supplied these Rugs to the Queen's Palace at Balmoral, as well as to the humblest cottage in the land, and the testimony from rich and poor alike is that, whether for drawing-room, bedroom, dining-room, or kitchen, no Rugs have ever been sold at once so handsome, cheap, and useful. They have now been before the public and in many homes for over two years, and we rely on this fact as a great testimony in their favour. In order that every home in the land may possess one or more of these beautiful Rugs, we will send 1 Hearthrug, sent carriage paid, for **3s. 9d.** 2 Hearthrugs, sent carriage paid, for **7s.** 3 Hearthrugs, sent carriage paid, for **10s. 0d.** If stamps, 3d. extra with each order. These rugs are made in five colours, which, being artistically blended, will suit any coloured carpet or suite. The Rug will be sent, carriage free, to any part of the United Kingdom, on receipt of P.O.O. for 3s. 9d., or 48 stamps. In ordering, it will be desirable to write name and address very plainly, and to enclose the application form found below. N.B.—There are two qualities of these Rugs made; we only sell the best.

"HEALTH" ORDER FORM.

On receipt of this Form, accompanied by a P.O.O. for **3s. 9d.** (or 48 stamps) we agree to forward, carriage free, a large and exquisitely designed HEARTHRUG, 72 in. by 36 in.—(Signed) H. HALL & Co.

P.O.O. TO BE MADE PAYABLE AT GENERAL POST OFFICE E.C., TO

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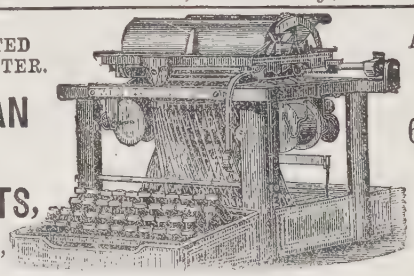

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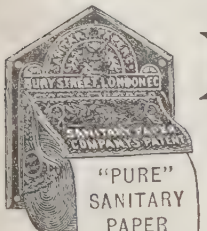

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Rolls of "Pure" Sanitary Paper, 500 feet long **1/-** „

1 *HOLDER &* **2** *ROLLS "Pure" Sanitary Paper* CARRIAGE PAID. **5/-**

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THE PLUMBERS' GRIEVANCE.

"Hullo! Bill, what's up? thought you had a snug berth."

"Yes, so I had, but my old guvner's right out of it now and has sacked the lot of us, he says there are no drains to clear out since people have taken to the New Sanitary Paper.

Distressed.—Not the least need for you to be anxious or distressed in mind. See and follow advice to "Eton" in Health No. 63, and you will in time completely recover your tone. Have you been frightened by quack-stories, or what? Attend to ordinary rules of health as above advised, and you will soon get quite well.

H. M.—We do not think there is any evidence that the process you propose to try is injurious. Better send us a stamped addressed envelope for private communication.

J. C. A.—Try cold sponging to the chest each morning for a time, and see how it agrees with you. A run now and then down the Clyde on the *Columba* would be likely to do your cold good. Continue the cod liver oil.

R. Johnston.—You suffer from a painful form of indigestion. Rest after your meals (this is absolutely necessary), and take Pepsine with your food. Let your diet, for a time, consist of soups, milk, fish, &c., so as to give your stomach opportunity te recover its tone. Don't attempt to rely on purgatives or emetics; you will only do yourself harm thereby. Your safety lies in getting your stomach into complete order. Avoid suppers, and give up tea and coffee.

M. J. Jones.—If you wish to see a London physician we can send you address of such, if you will let us know your desires. In your case we should recommend you to rest indoors for a time, to avoid all exertion, to take light and nourishing food, and to see to your digestion. If the cough is troublesome take the following:—Carbonate of ammonia, one drachm; tincture of squills, three drachms; compound tincture of camphor, half-an-ounce; add infusion of senega to make up six ounces. A tablespoonful of this mixture to be taken every four hours.

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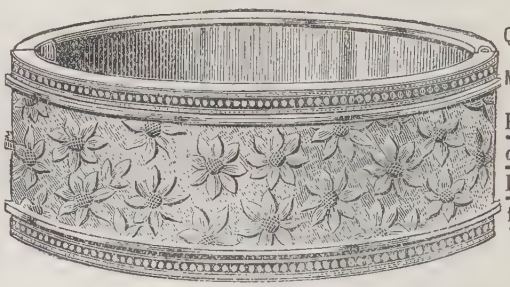
To save 25 to 50 per cent. purchase

FIELDING'S HALL-MARKED JEWELLERY.



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Massive Silver Bracelet, exact to above ..... £0. 14s. 6d.
Ditto ditto in 15-carat Gold £4. 15s. 0d.

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CHLORALUM POWDER should be used in Stables, Drains, Refuse Heaps, &c.

CHLORALUM WOOL is a powerful Styptic, and rapidly disinfects and cures idle and festering wounds.

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ABSORBENT WOOL absorbs liquid like a sponge. May be used with any dressing.

DOWIE & MARSHALL,

who were awarded the Silver Medals both at the National Health Society's Exhibition, 1883, and the Exhibition of the Rational Dress Association, make Ladies', Gentlemen's & Children's

BOOTS AND SHOES

in every kind, and keep many thousands ready for immediate use. *Price List Gratis.*

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Only Address—455, WEST STRAND (Opposite Grand Hotel).

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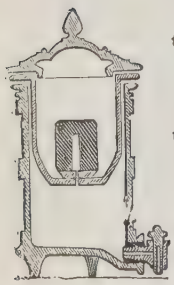

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FILTERING MEDIUM.

The Filter is made in four movable parts—the body the lining, the manganous carbon block, and the cover. By this means every portion of the Filter may be

KEPT PERFECTLY CLEAN,

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IMPROVED GRANULAR CHARCOAL FILTERS.

In addition to the bed of Granular prepared Charcoal, these Filters are fitted with a movable block of Manganous Carbon in place of sponge. This arrangement, whilst acting as a screen for suspended matters, gives a double action to the power of the Filtering Media.

ANY DESCRIPTION OF FILTER REFITTED AT MODERATE CHARGE.

Messrs. Doulton & Co. also manufacture Boudoir or Table Filters, Pocket and Syphon Filters for Tourists' use, Manganous Carbon Self-Acting Cistern Filters, Refrigerator Filters, &c. &c. May be had of all Dealers.—DOULTON & CO., Lambeth Potteries, London, S.E.

HEALTH

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, JULY* 18, 1884.

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Notes by the Way

"Health is the foundation of all our physical happiness."—*Herder.*

We have pleasure in reminding the readers of Health that a grand *fête* in aid of the London hospitals will be held at the Health Exhibition on the evening of Wednesday, July 23rd. The Prince and Princess of Wales will be present at the *fête*, and we believe their Royal Highnesses have throughout taken the liveliest interest in the arrangements. The admission on this occasion has been fixed at ten shillings, an amount which may well be cheerfully given by those who can afford it on behalf of the great medical charities that so unselfishly and quietly pursue their great mission of easing pain and restoring health. We should like to re-echo here the hope that the hospitals of London may not be forgotten when the full accounts of the Health Exhibition are closed. There remained a large balance from the Fisheries Exhibition of last year; and it is more than likely the same financial result will accrue from the "Healtheries." How could such a balance be more laudably spent than in aiding the London hospitals to continue their work in a satisfactory manner?

* * *

Referring to the cock-crowing nuisance mentioned in our correspondence columns in the present number, we observe that Mr. Strong, barrister, applied to Mr. Partridge at Westminster Police-court last week, for a summons against a person residing in Buckingham Palace-road, for keeping fowls so as to constitute a public nuisance. The summons was granted, and it will be interesting, if the matter is carried through to a decision, to watch the effect of this appeal to the law. The nuisance in question is so singularly irritating and destructive of reasonable repose, that we sincerely trust it will be shown that fowls in towns and cities are decidedly out of place in a legal, as they certainly are in a sanitary, sense.

* * *

The "drowning season" has set in this year with great severity. The list of fatal accidents in rivers and by the sea is already a long one, and this while the holiday season has barely begun. One notable feature in a large percentage of such fatalities is the absence of successful attempts to resuscitate the apparently drowned. There are comparatively few persons who know precisely and exactly "what to do" in a case of apparent death from drowning. Many lives are annually allowed to pass away into the sleep that knows no waking, simply through lack of this handy ambulance knowledge, and through ignorance of the treatment which should be adopted "before the doctor comes." People, as a rule, are not aware that persons have been restored after two hours' hard work on the part of those engaged in reviving them. A case of immersion, in which the pulse cannot be felt, and in which the signs of life have apparently ceased, is extremely apt to be given up as hopeless by the bystanders. The duly instructed person, on the contrary, knows that *nil desperandum* is the motto to be borne in mind in such cases. Aided by a little handy knowledge of artificial respiration and its methods, and by perseverance above all, the ambulance-student is able frequently to restore animation, and literally to save lives from the grasp of the grave. The time which should be spent by all in gaining a knowledge of what to do in emergencies can never be wholly thrown away. We shall publish, at an early date, an illustrated article on the treatment of the apparently drowned.

* * *

There is a class of persons, numbering many thousands, which may literally be described as "a floating population," and whose health and welfare are only now beginning to be fully supervised—we mean the canal-boatmen and their families. There exists, we believe, a law for the registration of canal-boats, but its provisions form a dead letter, owing to the absence of any practical department or machinery whereby its enactments might be practically applied. Improvement of the health and ways of the canal population has really been left to private enterprise and philanthropy. That the sanitation of this section of the people deserves a helping hand is a statement admitting of no reasonable doubt. Disease and misery may be averted in such a sphere by a little timely aid, and we trust that ere long that aid will be supplied.

* * *

A fatal case of "wool-sorters' disease"—the anthrax or splenic fever of the lower animals transferred to the human domain—has recently formed the subject of official investigation at Bradford. The deceased person had apparently caught the disease while engaged in sorting out Turkey mohair of "average" and "inferior" quality. The statement of the Town Clerk of Bradford, that since the rules advocated for the prevention of this disease had been adopted in workshops, there had been an almost complete freedom from the ailment, will be read with satisfaction by all friends of sanitary reform and advance.

* * *

In connection with small-pox and vaccination, it is interesting to observe that during 1883 only twenty-six cases of small-pox occurred in New York; while between May, 1883, and April, 1884, not a single case was reported. In New York, efficient means are taken in the shape of a City Board of Health for the supervision of the sanitary welfare of the New Yorkers. Only emigrants are required to undergo compulsory vaccination. The people of New York protect themselves efficiently by vaccination, without compulsion by law. Anti-Vaccination arguments have no influence on the other side of the Atlantic; hence the freedom of the great American city from small-pox. Inducements to resist a measure which has been abundantly proved to be protective against small-pox being absent, the people obey the laws of health-science, and, as a result, enjoy an immunity from the disease in question.

THE Society for the Study and Cure of Inebriety makes satisfactory progress. Under the able presidency of Dr. Norman Kerr, this body has already accomplished a large amount of work. At a recent meeting of the society the following resolution was passed:—"That this meeting, while recognising in the success so far of the experiment at the Dalrymple Home proof of the value of the Habitual Drunkards Act, regrets its temporary and defective character, and urges the Legislature to pass a permanent measure dispensing with the attendance of the applicant for admission to a retreat before two magistrates, giving magistrates power of committal in certain cases, and empowering guardians to detain pauper habitual drunkards in workhouses or in homes for inebriates for a time for treatment and care. This resolution to be forwarded to the press, and to the Prime Minister and to the Secretary of State." The terms of the resolution certainly commend themselves to all who desire to see drunkenness repressed in those who have become incapable of resisting the temptation to abuse liquors.

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THE education of deaf children was recently treated by Mr. Dalby, F.R.C.S., in an interesting lecture at the Health Exhibition. From the report of the lecture, we extract the following items which are of extreme interest in connection with the restoration of powers of communication with others to those children who have been unfortunate enough to lose such powers. Mr. Dalby selected three classes of cases to illustrate the method which should be employed to prevent dumbness. 1. A child who has entirely lost hearing, and can read, should be made to read several times during the day, and be taught lip-reading.

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SECONDLY, if a totally deaf child cannot read it should be at once taught on the pure oral system, and words which it could pronounce well by constant repetition be retained. 3. If a child can understand words pronounced in its ear, still better if it can hear a raised voice, it can be taught to articulate new words by making use of the hearing; its articulation, while becoming deficient, can be corrected, and efforts in this direction, added to lip-reading, will enable it to retain speech. Mr. Dalby added that it could not be too urgently insisted on that the educational treatment of this character must be commenced immediately after the occurrence of the deafness, or speech would be lost. By processes carried out on the above-mentioned plans, and varied according to the circumstances of the case (of which skilled teachers will be the best judges) great numbers of children may be saved from dumbness.

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NOW that the "mackeral scare" has been disposed of, a "lettuce scare" seems to be on the *tapis*. A correspondent, writing to a contemporary, warns the public of the "large amount of vermin" to be seen in every lettuce, and advises care in the use of the familiar vegetable. As we are not informed regarding the nature of the "vermin" in question, we may take the advice for what it is worth. The only visible "vermin" which a lettuce can harbour are small snails, a caterpillar or two, perhaps, or an occasional worm. The germs of various parasites might, it is true, be harboured in lettuces or other vegetables, but as these germs are visible only under the microscope, we presume the correspondent above alluded to does not include these latter in his list. What is to the purpose, is the advice that all vegetables should be cleansed before use; and as we presume few persons eat lettuces without first having had them well washed, the opinions of the newspaper correspondent are somewhat beside the mark.

Original Essays

"Life is not to live, but to be well."—*Martial.*

A CHAT ABOUT DISEASE-GERMS.

BY DR. ANDREW WILSON.

PART I.

EVERY one possesses some degree of acquaintance with the subject of "disease-germs," and with the theory of ailments which is founded upon the existence of these particles. But few, at the same time, save those whose business it is to engage in microscopic research, possess any notion of the appearance, form, or size of these germs, which in their minuteness are yet so powerful in introducing disease and death into the human estate. It is with the object of familiarising our readers with the general aspects and phases of germ life that we once more direct attention to this fertile theme. A series of papers on the "Germ Theory," published in the earlier numbers of HEALTH, served to convey an idea of the history, rise, and progress of the idea that to the growth of these living particles within our bodies, and within those of the lower animals, the so-called "zymotic" and infectious diseases are due. To those papers we may refer those of our readers who are interested in tracing the history of the "Germ Theory." At present we are concerned with the germs themselves, and we find in a recently-published work * the materials for forming a more concise idea of the natural history relationship of those minute bodies than has yet been possible of construction. Mr. Grove's book—illustrations from which we reproduce in these papers through the courtesy of the publishers, Messrs. Chatto & Windus—presents the natural history student with very complete materials for acquiring a knowledge of the germs which are so powerful in their effects on the animal frame. The student of medicine, and the practitioner as well, together with the general reader, cannot fail to glean much interesting information from Mr. Grove's pages.

The first point to which attention may be directed in dealing with the various "germs" which produce disease is that which relates to their *living* nature. We must bear clearly in mind that they are in reality forms of life, possessing as well-defined a place in the plant-creation as do the oaks and beeches of the forest. Their life-history has been in most cases clearly defined, and the stages through which they pass in the course of their development carefully outlined. Thus, most of the "disease-germs," we know, find a place amongst that group of lower or *flowerless* plants, to which the name of *Fungi* is given. The mushrooms are familiar examples of higher *fungi;* and many bonds of connection between the higher and lower forms of the class are found both in the structure and in the modes of development exhibited by these plants.

A second consideration which should not be lost sight of in dealing with disease-germs, is contained in the observation that the symptoms of each disease so produced, are merely the outward and visible signs of the growth and multiplication within the living body of these lowest forms of plant life. One disease—say, small-pox—shows different symptoms from another—say, scarlet fever, or measles—because it is produced by a special germ, whose mode of growth and effects on the living frame differ from those exhibited by the germs of the latter ailments. Each germ, as a rule, "breeds true" to its race. If we sow small-pox we get small-pox

* "A Synopsis of the Bacteria and Yeast Fungi." By W. B. GROVE, B.A. (London: Chatto & Windus. 1884.)

reproduced; if we sow measles that disease appears, and so on. The germ in each case reproduces and perpetuates its like, and gives rise within the living tissues to many other germs of like kind. "Infection," in this sense, is merely the transference of germs, or the sowing of seeds. The germs thus conveyed from the diseased body to the healthy or unaffected subject, are sown within the latter; and under favourable circumstances produce by their growth their characteristic disease. "Disinfection" is conversely seen to mean merely the destruction of the germs which are thus capable of affecting the animal frame in the manner noted.

The familiar illustration of the yeast-plant (*Saccharomyces*) presents us with a starting-point for our incursion into the domain of the botany of disease. Here (Fig. 1)

Fig. 1.—Yeast Plants (very highly magnified).

we find "high yeast" (*Saccharomyces cerevisiæ*), used in the production of fermentation, presenting us with a familiar and well-known case of the production of distinct effects by the growth of germ-life. A pinch of yeast is sown in a suitable fluid. Under the microscope (Fig. 1) yeast is seen to present us with single cells, each cell being a living plant, and each averaging the ·0003 of an inch in diameter. Thus a few yeast-cells sown in a fluid adapted for their growth results in the marvellous increase of the race. Countless cells are produced by the few we have sown. "The little leaven," soon leavens the "whole lump," and all the phenomena we collectively name *fermentation* are simply the signs and symptoms which attend the growth and increase of the yeast-cells. At *a* (Fig. 1) the cells are shown actively budding and reproducing their kind; and in this, and through other methods of increase, the process of fermentation is developed and carried to its end. "Low yeast" only differs from "high yeast" (shown in Fig. 1) in having cells of slightly smaller dimensions, and of more oval contour than those of the latter variety. Again, "low yeast" does not rise to the surface of the fluid it ferments; "Bavarian beer" being produced by the action of this variety. With "high yeast" the newly-formed cells rise to the surface, and produce foam-like masses. In either case, the action of fermentation is, however, typically seen. Yeast, added to any fluid containing sugar, causes the conversion of the sugar into alcohol (which remains in the fluid), and carbonic acid gas which rises from the fluid in the bubbles of fermentation. Substitute, for the process of fermentation, that of disease—place other fungi in the position of the yeast cells—and alter the scene of operations to the animal blood and tissues, and we at once perceive the analogy between the production of fermentation and the appearance of a germ-disease.

Take now as an example of "germs," a species somewhat resembling the yeast-plant in appearance. In Fig. 2 *a*

Fig. 2.—The germs of Small-pox and Vaccine Matter.

are represented the "germs" found in the fresh *lymph* obtained from the "pocks" of the cow or from the pustules of the human being which have been induced by vaccination. From the pustules of small-pox similar "germs" have been obtained. Here we see round cells of microscopic size, which, on examination, are seen to exist either as single cells, or united in chains, or forming a mass. When sown in the human blood, these minute forms of plant-life reproduce their like, and present us with the phenomena of small-pox or vaccination, as the case may be. Allied species are shown in Fig. 2 at *b* (*Microsphæra ureæ*) and at *c* (*M. ovatus*). By separating these living germs from the fluid in which they are contained, as by filtration, no effect is produced when the fluid thus filtered is added to the blood. It is clear, therefore, that it is to the sowing of these particles in the blood, and to their reproduction within the body, that all the characteristics of the diseased or other conditions which follow are due.

The small-pox and vaccine germ belongs to a group of fungi, to which the name of *Micrococci* (literally "minute berries") has been given. How they produce the young particles (or *spores*, as they are named) from which new germs spring, is not definitely known. But a near ally of the germ to which we owe small-pox is seen in Fig. 3.

Fig. 3.—The germs of Silkworm Disease.

Here we meet with the *Micrococcus bombycis*, or germ which produces the silkworm disease, known in France as *la flacherie*. This disease is highly infectious, and is, moreover, rapidly fatal to these insects. M. Pasteur has made it, and allied disorders, the subjects of investigation, and it is remarkable that an allied species to that figured above causes the death of numbers of the chinch-bug (*Blissus leucopterus*), a great enemy of the wheat crops in America. This insect race is subject to mysterious epidemics of disease. In 1865 the progeny of the broods of the preceding year were so completely exterminated by this disease, that it was with difficulty a single specimen could be found. Within the bodies of the affected insects the "germ" above alluded to (*Micrococcus insectorum*) is found; and there seems to exist no doubt that the fatal epidemic is due to the multiplication of this germ within the insect territory. It is interesting to note that the lower plant or germ would thus appear to revenge the destruction of the higher or wheat-plant by the insect race.

Another *micrococcus* (*M. septicus*) plays an important part in inducing suppuration and other inflammatory actions within the human body; and it would appear that the human race owes a very large share of the discomfort it experiences in disease to the existence and development within the tissues of these minute fungi.

In our next article we shall be able to note how wide and extensive is the range of habitation and development of these minute forms of life.

Swimming and Ling's Swedish Exercises.—Mrs. Florence Williams, Certificated Teacher. Schools and private families attended.—The Crown Baths, Kennington Oval, S.E.

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PHYSIOLOGICAL BEARING OF ELECTRICITY ON HEALTH.

SUCH is the title of a valuable paper by Dr. W. H. Stone, which was read and discussed before a recent Conference at the Health Exhibition, organised by the Society of Telegraph Engineers and Electricians. There was a large attendance, which included eminent medical men as well as electricians.

Disclaiming at the outset any intention to discuss accidents by lightning, or supposed injury to sight by the electric light, Dr. Stone pointed out that the development of the physiological applications of electricity had, as it were, hung fire, and was still in the ante-Faradaic period. This condition of affairs arose mainly from the fact that, from the great subdivision of modern science, a competent knowledge of physics as well as of physiology was rarely acquired by the same person. The foundation of this subject, however, was laid many years ago by Duchenne, of Paris, whose extensive researches were made from the physiological, rather than from the electrical point of view, with an induction coil.

Dr. Stone then humorously exposed some of the popular errors on the subject, which have already been treated at some length in these columns by the present writer, and pointed out how essential it was for accurate work that so powerful an agent should be measured by accepted units. The apparatus he employed for this purpose was exhibited and explained, and it was evidently capable of very great accuracy, electrical measuring instruments being now among the most delicate and accurate of any of those employed in physical research. The early statements as to the enormous variation in the electrical resistance of the body, were shown to be explicable by the fact that the insulating property of dry skin had not been properly recognised. In fact, we "lived in an epidermis of gutta-percha;" and, as soon as this error of skin-resistance was abolished by soaking the outer scarf-skin in salt and water, the electrical resistance of the body was very much diminished, and could be carefully investigated. One remarkable fact, early established, was that the body-resistance was not the same for high as for low tension currents, and that it was less for currents whose direction was alternately in opposite directions, such as those produced by an induction coil, than for continuous currents. Accurate figures were given, showing the resistance offered by different portions of the body under varying conditions of health and disease; for example, the normal resistance of 7 ft. of human flesh, was 1,027 ohms.; the unit called an ohm being the resistance offered to the passage of a current by a column of pure mercury of definite length and cross-section.

Coming to the curative value of electricity, the lecturer remarked that we were as yet in an initiatory stage in this matter, and that before we began to work with it, we must know the value and the measure of the tool employed. Electricity was not life, as was sometimes stated, but it was akin to the principle by which nervous impulses were transmitted in the body. As a muscular stimulant it was invaluable. Dr. Stone stated that he was accustomed to say to partly paralysed patients, that he "would give them a two miles' walk in bed" by irritating the muscles of the feet alternately.

In many nervous diseases, especially of the neuralgic class, it was very useful, and he had used it with great success in the treatment of that terrible disease, locomotor ataxy. Its use in eliminating metallic poisons (such as lead, copper, &c.) from the body, had not been at all recognised as it should, especially when the treatment was combined with the internal administration of a solvent for the metal set free by the electric current from its other combinations. In the treatment of diabetes, distinct evidence had been obtained of the value of electric currents passed through the head in such a way as to traverse a certain part of the brain, which had been shown by other researches to be connected with the sugar-secretion characteristic of that disease. In this case, however, the effect was rather transient, and hence very frequent application of the remedy was necessary. The theory of the action of the electric current in these and other cases seemed to depend upon the influence of the current in causing the walls of arteries to contract, and thus to diminish the supply of blood going to the part in question. The same explanation applied to the observed fact that a continuous current from the nape of the neck to the hand promoted sleep with much greater certainty and safety than such drugs as chloral, &c.

In the discussion which followed some leading electricians, as well as medical men, took part. The question of accidents from powerful currents was discussed at some length, the interesting point being elicited that high-tension currents were not as dangerous as was usually supposed, and that the real source of danger lay in rapid fluctuations in the intensity of a current traversing the body, rather than in its absolute intensity. The human body might in this connection be regarded as a galvanometer, and high-tension currents merely made more electricity traverse the body in a given time than low-tension currents did. The causes of death from powerful currents probably arose from (1) catalytic action, (2) blocking of the larger blood-vessels by blood-clots, (3) shock and syncope, due to action on the cardiac nervous system. One medical man bore strong testimony to the value of electricity as an instrument in making out the presence of certain diseases; and a very interesting discussion was concluded by an inquiry into the method in which electric currents passed through the human body. Strong evidence was adduced to show that nervous tissue was a distinctly bad conductor, and muscular tissue only a fair one, while the water which more or less pervaded all the tissues was, of the various elements of the body, the best conductor.

In a succeeding article we hope to present our readers with an abstract of the other paper read at the Conference —viz., that by Mr. R. E. Crompton on "Electric Lighting in relation to Health," and of the valuable and practical discussion which took place thereon.

WM. LANT CARPENTER.

SCOTT'S MIDLOTHIAN OAT-FLOUR.—Messrs. A. & R. Scott, of Kingston, Glasgow, and Finsbury-square, London, have prepared a singularly pure and nutritious "Oat-flour," which bids fair to take high rank among the food products which are specially adapted for infants and invalids, and for the use of dyspeptics in particular, whose digestion is weak, and whose stomachs refuse to assimilate foods of ordinary kind.—ED. HEALTH.—[ADVT.]

A RELIGIOUS ORDER.—The exportation of large quantities of human hair to France and England lately aroused the curiosity of the police authorities in the Russian province of Pskoy, and suspicions of fraud led to the arrest of a priest named Seraphin. It was then discovered that this man last year founded a religious sect, all the members of which were compelled to sacrifice their hair as a symbol of obedience to the superior. The locks of the faithful were consigned to a brother of Seraphin, who is, or was, a fashionable hair dresser in St. Petersburg, and a large profit was fraternally divided. Seraphin is now in jail, and the order of the Seraphinovski has been extinguished.

Personal Health

"Be timely wise;
With health all taste of pleasure flies."—*Gay.*

THE PHYSIOLOGY OF THE FEET.

By T. S. Ellis, M.R.C.S.,
Consulting Surgeon (late Surgeon and Ophthalmic Surgeon) to the Infirmary at Gloucester.

[Reprinted from the *Lancet* by permission of the Author.]

[SECOND PAPER.]

The position of the foot is important. To turn out the toes seems to me to be not only untrue to nature, but objectionable as well as inelegant. Camper regarded it as incontestibly the proper position. For the following reasons I believe that the toes should be directed forwards, the inner margins of the feet parallel. It is desirable that the propulsion of the body onwards from, and consequent thrust backwards on, the foot, and especially on the great toe, should be in the direction of its length rather than obliquely across it, not only as giving a firmer bearing from which to propel the body onwards, but as diminishing the friction on the sole and consequent tendency to foot-sore. This applies also to the smaller toes in a less degree. The long axes of all the toes continued backwards seem to converge on the heel. By standing with the bare foot and springing forward it can readily be seen how much more tendency there is to slide on the sole when the foot is turned out than when it is directed forwards. In the latter position, too, the arch is much more firmly braced up—a fact recognised by surgeons who advise, in cases of flat-foot, that the toes should be directed inwards rather than outwards.* In standing, the everted position is not more stable. When a body stands on four points I know of no reason why it should stand more firmly if those points be unequally disposed. The tendency to fall forwards would seem to be even increased by widening the distance between the points in front, and it is in this direction that falls most commonly occur.

Those who look on the human foot as fully partaking of the beauty of which artists in every age have regarded the human body to be the highest expression, ought not readily to admit that the boot which best conforms to its outline, reveals its features and expresses its leading characteristics, will require an apology for want of elegance. I, at any rate, cannot admit anything of the kind. The human foot is, moreover, an object of far more than the ordinary interest belonging to every part of the human structure. In the monograph already mentioned, I ventured to suggest that, anatomically, there is no more marked distinction between man and the lower animals than is to be found in the special development of the foot.

However much we may regard it as in itself calling for admiration on account of its fitness for the purpose it has to fulfil and for others it may on occasion serve, the human foot is far more remarkable as an adaptation of the mammalian type, modified to suit a purpose kindred to but differing from that which the corresponding member supplies in other animals. The heel has its special form and significance in that man alone, has one adapted for crushing an offensive object beneath it. The large size and important function of the great toe is also a specially human feature. In the mammalian typical limbs the bones of the hand and foot (or rather, to avoid confusion, in four-handed or four-footed animals, manus and pes) are arranged on a uniform plan: to each are allotted five digits, the first having two phalanges (or joints) and the others three. The first (or great) digit is generally attenuated, often suppressed, but whenever it exists it has two phalanges only.

This curious difference is nowhere, so far as I know, explained. I cannot discover that any animal (below man), recent or fossil, exists, or has existed, from the times of the Trias formations till now in which this arrangement has appeared to be essential. It may be of some advantage in the quadrumana, or monkey tribe, and doubtless the human hand is thus better fitted for its functions; but it seems to me to be much more difficult to imagine it possible for any other arrangement to exist in the foot unless the whole scheme of it, so to speak, were changed. It is essential that the only joint in the great toe should be drawn to the ground by the strong flexor tendon attached to the final joint, close to it; if another joint existed it must rise up, as occurs in the other toes, and the solid bearing would be lost. Apart from this, it must be admitted that it is mainly due to the special development of the great toe in a line with the long axis of the foot that man is enabled to exercise the attribute—in all ages regarded as a noble one—of standing erect. Yet this special feature is the one which the conventional boot does most to conceal, and in direct proportion as it is successfully concealed the wearer is supposed to be dressed in good taste. It would seem to be regarded as necessary to reduce the foot to even-sided symmetry; but there is no law of beauty which requires this. Mr. Ruskin assuredly would not say that it is in any of "the eternal canons of loveliness" decreed that an object to be beautiful must be symmetrical. An architect required to provide more space on one than on the other side of a building would not seek to conceal or even to minimise the difference; he would seek rather to accentuate it, and give the two sides of the structure distinctive features. To me it appears that it is on this principle only that a boot, to be at once useful, graceful, and appropriate can be designed.

Moreover, the sense of symmetry, natural and reasonable where the same function has to be performed, is, or ought to be, satisfied by the exact correspondence of the two feet, which, taken jointly, may be described as the two halves of an unequally expanded dome, irregularly extended at the base, the greatest extension being in the line of the greatest expansion of the dome, through which line the division runs. The dividing line thus makes the margin of the two feet parallel to each other. It may be that the inner margin of the great toe, if produced backwards, would fall a little distance from the inner side of the heel. A perfect adult foot, in which the great toe is not, and never has been, diverted outwards, and in which there has been no consequent thickening of the large joint, is not easy to find. In children the inner line is often visibly concave. It may be remarked that in rest the great toe is everted as well as drawn upwards, in which position the toes are usually packed in a tight, medium-pointed boot; it is only, therefore, in action, as the toes are pressed against the ground, that the full extent of the approximation to a straight inner line is seen.

* The bearing of these views on the treatment of flat-foot is discussed in a brief communication to *The Lancet* of February 9th.

A Western editor received a letter from an indignant subscriber, who said: "I don't want your paper any longer." To which the editor mildly replied: "That is all right. I wouldn't make it any longer if you did, because in that case I should have to buy a new press. The present length just suits me, and I am glad it suits you." It is to be hoped this "soft answer turned away wrath."

Healthy Houses

"A happy home must be a healthy home."—*Anon.*

LIGHT AND HEALTH.

By GEORGE G. ANDRÉ.

CONCLUDING PAPER.

THE evil of lack of light, inseparable from life in crowded cities, is greatly aggravated by certain customs and fashionable habits, for the retention of which, even for a single day, necessity cannot be pleaded. The mode of living which occasions the loss of the early morning—a serious loss in the short days of winter—we have already alluded to, and this custom may, perhaps, be to the individual somewhat of a necessity in the existing order of things. But there are habits of a wholly different character, which, though separately of less consequence, may collectively be productive of greater evils of the kind now under consideration. If an abundance of direct light is indispensable to a healthy organisation, any custom or habit which diminishes opportunities for obtaining such light must tend to bodily enfeeblement and consequent disease.

It is an unfortunate circumstance that all women, speaking generally, are addicted to habits and practices of this sort. The fact is the more to be deplored as they are debarred by the nature of their occupations from an exposure to sunlight in an equal degree with men. These practices may possibly have taken their rise in this very circumstance. Unaccustomed to such exposure, women have come to regard it as a disturbance of the normal conditions of their mode of living, and shun it accordingly. Something may be due to mere imitative propensities. Daughters follow the example of their mother. But false sentiment and fashion have probably been the chief factors in originating and maintaining these reprehensible practices. Be their primary causes what they may, the fact remains that some have become general and confirmed habits, and others have grown into a custom. They are all founded upon a desire to avoid the direct rays of the sun.

Whatever mystery surround the origin of this desire, it is itself very clearly apparent, and it manifests itself in a variety of ways. Chief among these, perhaps—certainly chief in its effects for evil—is the practice of excluding sunshine from living-rooms. The abuse of window-blinds is a matter of sufficient importance, from a sanitary point of view, to merit earnest attention. A blind drawn against the noonday sun of midsummer may be a justifiable protection. But when the windows are stopped therewith in the morning and in the evening, in January as well as in July, we have reached a state of things that must be pernicious in its consequences. Yet this is precisely the state we find to exist. Sunshine within doors is a forbidden thing. If a kindly ray has contrived to steal in, the blinds are hastily drawn to expel and keep out the unwelcome intruder. But usually they are drawn in anticipation of any such intrusion. No burglar ever found himself more effectually barred out than does the sun when he arrives over against the windows of a dwelling-room.

If a reason were demanded for these proceedings, the answer would probably not be ready. Injury to the bright colours of the carpet and the table covers would, perhaps, be first thought of in many instances, and in some this might indicate the true motive; for, unhappily, many are more willing to preserve "appearances," that is, their furniture, than their health. But we have only to follow the mistress of a household out of doors to become aware that there are other motives than this one. If she step into her own carriage, she will immediately pull down the blinds on the sunny side. If she take her seat in a railway carriage, in the preservation of which she can certainly have no interest, her first attention will be given to the same object. If she go on foot, she will be careful to distend over her head the ever-present sunshade. It is not that the sun's direct rays are felt to be overpowering, for these practices are confined to no part of the day and to no season of the year. A feeble winter's sun, peeping at eventide through a rift in the leaden clouds behind which he has been for days hidden, brings about the pulling down of window-blinds and the unfurling of parasols as surely as the fierce sun blazing in the meridian of a clear summer sky.

This unnatural dread of sunshine finds, probably, its origin mainly in one of the vagaries of fashion. The crimson colours which exposure brings have come to be regarded as distinctive physical marks of the lower grades of society—in other words, vulgar. Hence arises a willingness to forego the benefit of a salutary influence rather than to acquire therewith a complexion not favoured by Fashion, which has decreed that the sickly pallor of organic decay shall be held to be more beautiful than the dark tints and ruddy glow of vigorous, robust health. The practice of screening the face from the sun when out of doors is the more objectionable as the hands, again in obedience to the bidding of Fashion, are gloved, so that no part of the body is exposed to the direct rays. In the matter of gloves, men have to a great extent adopted the custom of wearing them in the open air. Apart from its contemptible effeminacy, the practice deserves to be condemned for its unwholesome tendency.

These facts and circumstances reveal the existence of a debilitating influence, a cause of diminished vitality hitherto unsuspected. A source of bodily enfeeblement and disease as prolific in these evils as the want of pure air is here exposed to view, and the origin of the baneful influence is seen in certain conditions of urban life, and in some common habits and customs. How the evil is to be grappled with is a question which sanitary reformers must decide according to their lights and powers. Something may be effected by legislation and supervision. The admission of sufficient sunlight into dwelling-rooms is a matter no less worthy the intervention of superior authority than the supply of sufficient air or the removal of noxious refuse. And the vigilant supervision of Boards of Health might do much in remedying defects. In respect of existing structures the question is doubtless beset with difficulties, and perhaps nothing more than a mitigation of the evil is to be accomplished. But determined and persistent action on the part of sanitary boards, with the co-operation of architects, would certainly effect much in the way of improvement.

As for the habits and customs alluded to, they are to be dealt with by individual effort, and here only the will is required to achieve complete success. To every reflecting person, the folly of endeavouring to escape from

A VALUABLE INVENTION.—It is gratifying to learn that MR. R. ADAMS, of 17, Blackman-street, London, S.E., whose fanlight-openers and silent door-springs are being extensively used, has received large orders for his PATENT REVERSIBLE WINDOW. The sashes, although they slide up and down in the usual way, can be instantly turned inside out, enabling anyone to clean each side of the glass with ease, while standing in the room.—[ADVT.]

PURE WATER is such a vital necessity that, without it, illness is certain. None are more prone to the ill effects when impure than the young. To ensure a pure supply send a post-card to the LONDON AND GENERAL WATER PURIFYING COMPANY, LIMITED, 157, Strand London, W C., who will return particulars post free.—[ADVT.]

the sun's direct rays must be apparent as soon as the influence of these upon health are clearly perceived. Rather should they be sought by persons who inhabit imperfectly lighted town-houses to counteract the influence of the obscurity in which they are compelled to live. All who spend most of their time within doors, women generally, and men of sedentary occupations—especially those whose life is one of mental activity—will do well to give this matter serious attention. The need of sunshine in the nursery hardly admits of question. Children must grow up in sunshine, or, like the tender plants in similar conditions, they will speedily languish, and lose the vigour of young life. Scrofulous tendencies are held in check by nothing so much as a bountiful supply of sunlight; ricketty children soon perish in a room into which the sun never enters. To choose for a nursery an apartment having a northern or north-western aspect, or to stop the windows, with drawn blinds, is to commit an error of judgment likely to be attended with serious consequences to the tender occupants. As well expect flowers to come to perfection in the shade of a dead wall, as children to flourish in the gloom of an ill-lighted room.

Pure air and good food receive due attention, but the sunshine is too often forgotten. The instinct that prompts the lower animals to lead their young to the sunny spots to bask in the genial rays is silenced in man by the influences of his artificial mode of living. For all persons in winter, when the days are short and the sunshine rare, the need of seeking opportunities for bathing the body in sunlight is greater than in the summer, when the days are long and the sky clearer. At such times it is well to choose the sunny side of the street; to discard the sunshade altogether; to keep the window-blinds up throughout the day; in short, to take a plunge into the light-bath whenever the opportunity occurs.

UNFERMENTED WINES.

By W. Mattieu Williams, F.C.S.

(From the *Gentleman's Magazine* for July.)

When Mr. Gladstone advised our farmers to direct their attention to the cultivation of fruit, he only spoke of its use in making jam. There is another demand that is just opening and likely to widen very considerably. I refer to non-alcoholic wines.

I have tasted many of these, and have found that, with a very few exceptions, they are miserable failures, and further examination has refuted the excuse for such failure. It is not the impossibility of preserving pure unfermented fruit juice, but the want of skill of the manufacturers, or, still worse, their want of honesty in substituting sugared coal-tar products, the so-called "essences" of jargonel, raspberry, &c., for the simple fruit juice. The idea that the unsophisticated public cannot distinguish the spurious concoctions from the pure juice is a delusion that rapidly and justly wrecks the shallow enterprise.

I have noted that the best samples I have tasted are aërated by forcing into them carbonic acid under pressure, as in the manufacture of soda-water, &c., which can now be done so cheaply. There may be something more in this than the mere direct improvement of flavour effected by the aëration.

We know that fermentation is an oxidising process, during which carbonic acid is given off; it is therefore very probable that the substitution of carbonic acid for the oxygen otherwise dissolved in the fermentable liquid, and the inclosing of the liquid in an atmosphere of carbonic acid, may render fermentation impossible, and thus solve the whole problem of keeping unfermented wines, without having recourse to salycilic acid or any other questionable admixture.

I commend this theory as a suggestion to those who are commercially interested in its practical demonstration. Let them take samples of pure fruit juice, bottle them without aëration, and other samples of the same, aërated and bottled in similar manner, and compare the result of keeping for some time. If both are clear when bottled any change of a fermentive character will probably be indicated at once by turbidity.

If this method of suppressing fermentation fails let them try others; appeal to the resources of modern chemistry, persevere until they succeed, and they will be well rewarded. Recent experience at a Masonic banquet, where all the usual toasts were drunk with full measure of joviality, and all in non-alcoholic beverages, has convinced me that the good fortune of Mr. Johnson, of Wrexham, may be shared by others who will follow his example in anticipating the growing demand.

International Health Exhibition. — Eastern Gallery. — Money Saved.—Adopt Chappuis' Daylight Reflectors, to supersede gas or lamp light during the day. They are universally used, from gentlemen's houses to workmen's shops or dwelling-places. (H.) Chappuis, patentee, 69, Fleet-street, London.—[Advt.]

"Oh, Professor," exclaimed sentimental old Mrs. Fishwacker, during a private organ recital in her new music room, "do pull out that sweet nux vomica stop once more."

Faith is sometimes personified as a drenched female clinging to a sea-washed rock; but a better personification would be a bald-headed man buying a bottle of patent hair restorer.

Application for Warts. — Dr. Cordes, of Geneva, states in the *Journal de Thérapeutique*, that he has always found the following application successful: iodine, six parts; crystallized carbolic acid, twenty-one parts; and alcohol, two and a-half parts by weight. After scraping the wart, or cutting it down to a level with the skin (without causing it to bleed), he touches the wart with a few drops of the above solution. In a minute it becomes soft, and allows of another scraping and a new application; and sometimes even a third scraping and application can be made without causing bleeding.

Mouth-Washes.—The *British Journal of Dental Science* recommends the following mouth-washes for the use of sick persons whose teeth and gums often become unhealthy through insufficient nourishment, medicines, or want of cleansing:—One part permanganate of potash to 100 to 150 parts of water, to which can be added some camphor, as the metallic taste is disagreeable; or, a solution of boracic acid one in 20 or 30; or the following:—Tinct. of benzoin, 10 parts; tannic acid, 20 parts; alcohol, 30 parts; oil of peppermint, a sufficiency. Put 10 to 20 drops in a glass of water.

Housekeepers are frequently annoyed by oil marks on papered walls against which thoughtless persons have laid their heads. These unsightly spots may be removed by making a paste of cold water and pipe-clay or fuller's earth, and laying it on the surface without rubbing it on, else the pattern of the paper will then likely be injured. Leave the paste on all night. In the morning it can be brushed off and the spot will have disappeared, but a renewal of the operation may be necessary if the oil mark is old. The experiment will be likely to result most satisfactorily on plain papers, or that with the least number of coloured figures.

Public Health

"Health is the first Wealth."—*Emerson.*

NATIONAL WORK AND HEALTH.

(*Address delivered at the International Health Exhibition by Sir James Paget.*)

III.

LET me add only one more reckoning. In a paper last year, at the Statistical Society, Mr. Noel Humphreys said "that if the English death-rate should continue at the low average of the five years 1876-80, the mean duration of male life in this country would be increased by two years, and that of female life by no less than 3·4 years as compared with the English Life-table." And he showed further that "among males 70 per cent. and among females 65 per cent. of this increased life would be lived between the ages of 20 and 60 years, or during the most useful period."

I should like to be able to tell the value in working-power of such an addition to our lives. It is equal to an addition of more than 4 per cent. to the annual value of all the industry, mental and material, of the country.

But some will say, admitting that it is desirable, seeing how keen the struggle for maintenance already is, can more than this be done? and the answer may be, and must be, much more. In this, as in every case of the kind, every fruit of knowledge brings us within reach of something better. While men are exercising the knowledge they possess, they may be always gaining more. This Exhibition has scores of things which are better helps to national health than those of the same kind which we had twenty years ago, and with which the gains already made were won. If I were not in near official relation with the jurors I would name some of them; there are truly splendid works among them.

But do not let me seem to disparage the past in praising the present. It is difficult to speak with gratitude enough of what has been done, even though we may now see ways to the yet better.

Any one who has studied the sources of disease during the last thirty years can tell how and where it has been diminished. There is less from intemperance, less from immorality; we have better, cheaper, and more various food; far more and cheaper clothing; far more and healthier recreations. We have, on the whole, better houses and better drains; better water and air, and better ways of using them. The care and skill with which the sick are treated in hospitals, infirmaries, and even in private houses, are far greater than they were; the improvement and extension of nursing are more than can be described; the care which the rich bestow on the poor, whom they visit in their own homes, is every day saving health and life; and, even more effectual than any of these, is the work done by the medical officers of health, and all the sanitary authorities now active and influential in every part of the Kingdom.

Good as all this work has been, we may be sure it may become better. The forces which have impelled it may still be relied on. We need not fear that charity will become cool, or philanthropy inactive, or that the hatred of evil will become indifference. Science will not cease to search for knowledge, or to make it useful when she can; we shall not see less than we do now, and here, of the good results of enterprise and rivalry, and of the sense of duty and the sorrow for shame that there should be evil in the land.

What more, then, it may be asked, is wanted? I answer, that which I have tried to stir: a larger and more practical recognition of the value and happiness of good national health; a wider study and practice of all the methods of promoting it; or, at least, a more ready and liberal help to those who are striving to promote it. In one sentence, we want the complete fulfilment of the design of this Exhibition, with all the means towards health and knowledge that are shown in it, and with its hand-books, lectures, conferences, and the verdicts of its juries.

We want more ambition for renown in health. I should like to see a personal ambition for renown in health as keen as is that for bravery, or for beauty, or for success in our athletic games and field-sports. I wish there were such an ambition for the most perfect national health as there is for national renown in war, or in art or commerce. And let me end soon by briefly saying what I think such health should be.

I spoke of the pattern healthy man as one who can do his work vigorously wherever and whatever it may be. The union of strength with a comparative indifference to the external conditions of life, and a ready self-adjustment to their changes, is a distinctive characteristic of the best health. He should not be deemed thoroughly healthy who is made better or worse, more or less fit for work, by every change of weather or of food; nor he who, in order that he may do his work, is bound to exact rules of living. It is good to observe rules, and to some they are absolutely necessary, but it is better to need none but those of moderation; and, observing these, to be able and willing to live and work hard in the widest variations of food, clothing, and all the other sustenances of life.

And this, which is a sign of the best personal health, is essential to the best national health. For in a great nation, distributed among its people, there should be both muscular and mental powers suited to the greatest possible variety of work. No form or depth of knowledge should be beyond the attainment of some among them; no art should be beyond its reach; it should be excellent in every form of work. And, that its various powers may have free exercise and influence in the world, it must have, besides, distributed among its people, abilities to live healthily wherever work must be or can be done.

Herein is the essential bond between health and education; herein is one of the motives for the combination of the two within the purpose of this one Exhibition; I do not know whether health or knowledge contributes most to the prosperity of a nation; but no nation can prosper which does not equally promote both: they should be deemed twin forces, for either of them without the other has only half the power for good that it should have.

It is said, whether as fact or fable, that the pursuit of science and of all the higher learning followed on the first exercise of the humanity which spared the lives of sick and weakly children; for that these children being allowed to live, though unfit for war or self-maintenance, become thinkers and inventors. But learning is not now dependent upon invalids; minds are not the better now for having to work in feeble bodies; each nation needs for its full international influence both health and knowledge, and such various and variable health that there should be few places on earth or water in which some of its people cannot live, and multiply, and be prosperous.

If, therefore, we or any other people are to continue ambitious for the extension of that higher mental power of which we boast, or for the success of the bold spirit of

THE "BONCONTOUR" STAY-BELT and other Orthopædic Apparatus, made by K. R. SCHRAMM, Orthopædic Mechanician, 64, Belmont-street, Chalk Farm-road, London, N.W.—[ADVT.]

enterprise with which we seek to replenish the earth and subdue it; if we desire that the lessons of Christianity and of true civilisation should be spread over the world, we must strive for an abundance of this national health, tough, pliant, and elastic, ready and fit for any good work anywhere.

Appendix.—The following tables were arranged and very kindly given to me by Mr. Sutton.

Male Population enumerated in Census of 1881. *Distribution according to Ages and Occupations.*

Between the Ages.	Class I. Professional.	Class II. Domestic.	Class III. Commercial.	Class IV. Agricultural.	Class V. Industrial.	Class VI. Returned by Property, Rank, &c.; not by Special Occupation.	All Classes.
0— 5	...	...	...	...	...	1,757,657	1,757,657
5—15	6,361	8,822	59,463	72,345	174,223	2,649,595	2,970,809
15—20	56,265	42,145	146,662	208,113	691,078	124,006	1,268,269
20—25	75,498	41,301	147,230	150,695	665,540	32,090	1,112,354
25—45	201,619	106,989	420,133	419,173	2,028,958	62,560	3,239,432
45—65	88,062	48,142	162,025	345,260	1,024,698	87,632	1,755,819
65—upwards	23,150	11,109	25,148	122,758	210,681	142,716	535,562

Probable Annual Amount of Sickness, expressed in Weeks, based upon the Experience of the Manchester Unity Order of Odd Fellows.

0— 5	...	...	...	...	...	...	...
5—15	...	...	...	...	...	...	...
15—20	37,462	28,061	97,647	133,560	460,130	82,568	844,428
20—25	55,669	30,453	108,560	111,110	490,730	23,661	820,183
25—45	209,660	106,480	418,140	417,190	2,019,400	62,264	3,224,134
45—65	240,930	131,710	443,270	944,600	2,803,500	2,397,750	4,803,760
65—upwards	279,890	134,310	304,050	1,484,200	2,547,400	1,725,500	6,475,350

Probable Annual Number of Deaths according to English Life Table No. 3.

0— 5	...	...	...	...	...	113,399	113,399
5—15	47	66	443	538	1,296	19,716	22,106
15—20	349	261	910	1,291	4,285	769	7,863
20—25	653	357	1,273	1,303	5,751	277	9,614
25—45	2,271	1,205	4,732	4,721	22,846	705	36,480
45—65	2,155	1,156	3,891	8,295	24,618	2,105	42,180
65—upwards	1,953	937	2,122	10,360	17,779	12,039	45,190

Female Population enumerated in Census of 1881. *Distribution according to Ages and Occupations.*

Between the Ages.	Class I.	Class II.	Class III.	Class IV.	Class V.	Class VI.	All Classes.
0— 5	...	...	...	...	...	1,763,207	1,763,207
5—15	5,672	100,423	1,250	2,150	101,031	2,766,392	2,976,918
15—20	37,028	453,548	4,235	9,466	366,251	408,435	1,278,963
23—25	37,561	332,988	4,606	6,905	298,555	535,277	1,215,872
25—45	65,956	411,051	6,352	14,803	515,583	2,481,037	3,494,782
45—65	38,622	203,463	2,451	20,864	243,719	1,442,594	1,951,713
65—upwards	11,231	43,849	573	10,652	53,050	533,677	653,082

Probable Annual Amount of Sickness expressed in Weeks, based upon the experience of the Manchester Unity Order of Odd Fellows.

0— 5	...	...	...	...	...	...	...
5—15	...	...	...	...	...	...	...
15—20	24,658	302,030	2,820	6,303	243,900	271,999	851,701
20—25	27,701	245,555	3,397	5,092	220,180	394,760	896,685
25—45	65,604	408,860	6,318	14,724	512,840	2,467,800	3,476,146
45—65	106,230	559,620	6,741	57,388	670,350	3,967,900	5,368,229
65—upwards	140,360	545,580	7,129	132,530	660,050	6,640,200	8,125,849

Probable Annual Number of Deaths according to English Life Table No. 3.

0— 5	...	...	...	...	...	100,970	100,970
5—15	42	758	9	16	763	20,900	22,488
15—20	243	2,974	28	62	2,401	2,677	8,385
20—25	338	2,998	41	62	2,689	4,822	10,950
25—45	752	4,685	72	169	5,876	28,276	39,830
45—65	809	4,263	51	437	5,105	30,225	40,890
65—upwards	893	3,473	45	843	4,201	42,265	51,720

THE SICK POOR AND THEIR TREATMENT.

The passing of Gathorne Hardy's Act of 1867 may be said to have created a revolution in the method of dealing with the sick poor in the metropolis, providing, as it did, for their treatment in establishments under separate management and quite distinct from the workhouses. The various Boards of Guardians have loyally carried out the provisions of the Act, and in all districts of London are to be found parish infirmaries, specially designed and erected for the care and treatment of sick paupers, a medical superintendent being in charge of each infirmary. The finest institution of the kind is that provided by the Guardians of St. Marylebone at Notting-hill, which was opened by the Prince and Princess of Wales in 1881, that occasion being the first on which Royalty has assisted at any ceremony in connection with a poor-law establishment. The St. Marylebone Guardians soon found the same difficulty that had been experienced elsewhere, of obtaining suitable trained nurses, of which they require a staff of fifty-six; and, finding that the efficiency of the working of their large Infirmary was likely to be much impaired by this scarcity of nursing help, decided upon the step—till now novel in poor-law administration—of erecting a building as an institution for training nurses.

This establishment, which comprises accommodation for forty probationers and nurses, with every proper convenience for them, and including lecture-rooms, the cost of which is £12,000, has been erected adjoining the Infirmary, and will be opened by H.R.H. Princess Christian, on the 22nd inst.

In the regulations for the carrying on of this much needed work, the Guardians are acting in connection with the Council of the Nightingale Fund, who associated with them in this desirable object, the working of which will be watched with great interest by those who know the great difficulties connected with the nursing of the sick and the infirm, who come under the care of the Poor Law.

Ostrich-farming is a new business, unknown till the English colonies of South Africa realised such wonderful results. We have already given some statistics of their enormous increase. The ostrich lays a minimum of forty, a maximum of sixty, eggs in a season, weighing about three pounds each, and which are laid in the sand, and left to hatch in the hot regions; but in cooler regions the male and female birds sit on the nest by turns, defending it with great courage. Forty days is the time for incubation. Since the importation of domestic ostriches into the United States, the South African farmers have become fearful of losing their great profits in case of a successful competition springing up.

Fusel-oil in Sweetmeats.—Dr. E. H. Bartley, chemist to the Brooklyn Board of Health, has made a report to that body in regard to the "rock-and-rye drops" which, although flavoured with fusel-oil, are constantly sold at the "candy-shops" in large quantities to school-children, and in it he says:—"In some of these candies the oil is not thoroughly mixed or diffused, and occasionally a good sized cavity is filled with fusel-oil. Estimating that a child may buy and eat a half pound of this candy, containing 5·7 grains of the oil, it will be seen that it will take the maximum dose for an adult, and will probably experience distinct symptoms, such as dizziness, headache, or even slight intoxication. A fatal dose of fusel-oil is stated by the best authorities to be from 1·4 to 1·6 grammes, or the quantity found in two pounds of this candy." "Jargonel pear-drops" and other "sweets" of the kind are, we believe, liable to a like objection.

Jottings from the Journals

"Th' ingredients of health and long life are
Great temperance, open air,
Easy labour, littl care."—*Sir Philip Sidney.*

The Dry Method of Sewage-Disposal in Canton.—In Canton, a population of a million and a half is densely packed together in narrow streets, with very few open spaces. Miss Isabella Bird, speaking in her book, "The Golden Chersonese," of the sanitary arrangements of the city, says that every street is paved with large slabs of granite, and that beneath this pavement is a drain for carrying off the rain-water. These drains open into six intercepting culverts, which empty into four branches of the river on which the city stands. The local authority of each street is bound by law to cleanse the drain of the street, and it is the duty of the prefect to cleanse the intercepting culverts every autumn; neither of these authorities, however, discharge their duties in a satisfactory way, yet Canton, in spite of its dirty drains and overcrowded areas, is, on the whole, a very healthy city, and serious epidemics, it is said, very rarely occur. This result may be attributed, according to Miss Bird, "to the excellent plan of sending out the garbage of the city daily to fertilise the gardens and fields of the neighbourhood." This testimony in favour of the dry method of disposing of sewage, coming, as it does, from an independent observer, who observed it in a town where, in a climate warm in summer, almost every other sanitary principle is violated, appears, at the present moment, to be worthy of record in these pages.

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A Tailed Child.—Mr. H. W. Eaton, of Louisville, Kentucky, says:—The *Commercial* of this city for the 17th and 18th inst. gave accounts of a tailed child recently born here. As such cases are of scientific interest, and are very rare, a party of four, including a prominent doctor and the writer, concluded to investigate the case. We found a female negro child, eight weeks old, normally formed in all respects, except that slightly to the left of the median line, and about an inch above the lower end of the spinal column, is a fleshy pedunculated protuberance about $2\frac{1}{2}$ in. long. At the base it measures $1\frac{1}{4}$ in. in circumference. A quarter of an inch from the base it is somewhat larger, and from that it tapers gradually to a small blunt point. It closely resembles a pig's tail in shape, but shows no sign of bone or cartilage. There seems to be a slight mole-like protuberance at the point of attachment. The appendage has grown in length about a quarter of an inch since the birth of the child. The mother, Lucy Clark, is a quadroon, seventeen years old, and the father a negro of twenty, both normally formed. In Darwin's "Descent of Man," Vol. I. p. 28, he speaks of a similar case, and refers to an article in "Revue des cours scientifiques," 1867—68, p. 625. A more complete article is that by Dr. Max Bartels, in "Archiv für anthropologie" for 1880. He describes twenty-one cases of persons born with tails, most of them being fleshy protuberances like the one just described.—*Science.*

THE Æolus Waterspray and General Ventilating Company have received instructions from Messrs. Arding, Bond & Buzzard to apply their system of ventilation to the composing rooms, the largest in London, of the *Daily Telegraph*, and from Mr. Chatfield Clarke to the new offices, foundry, and composing room of the *Daily News*.

Our Bookshelf

"Reading maketh a full man."—*Bacon.*

A BATCH OF INTERNATIONAL HEALTH EXHIBITION HANDBOOKS.

WE have received copies of seven of the recently-issued "Handbooks" belonging to the series published by Messrs. Clowes, under the auspices of the "Health Exhibition" authorities. Attention has already been called in these pages to the eminently useful character of the text-books included in this series. Well-nigh every topic which can be ranked as hygienic in its character is represented in the list of publications issued at the Exhibition; and the names of the writers are, in the majority of cases, guarantees of the excellence of the work. When the series is fully completed, these "Handbooks" will form an important set of health-manuals; and it is not the least interesting feature of their excellence that they contain much information that is generally interesting, in addition to details which are of high practical interest.

Health in the Workshop is the title of the handbook written for the series by Mr. JAMES B. LAKEMAN, H.M. Senior Inspector of Factories. Included in the pages of this manual we find full information respecting factory legislation and its progress, accidents in factories, sanitation, and ventilation. Mr. Lakeman writes with earnestness and graphic power. Possessing an intimate knowledge of the whole subject, Mr. Lakeman deals with each detail in a masterly fashion, recounting the struggles through which protective legislation has passed, and showing the means whereby future progress is most likely to be ensured. This manual is full of information regarding the various processes which tend to injure the operatives in various trades and manufactures; and health-lecturers may find in Mr. Lakeman's pages many facts and details worth reproducing in their public teachings. The section on the "Ventilation" of workshops is worthy the attention of both employers and employed. The "Blackman Air Propeller" is lauded by Mr. Lakeman as an efficient means of ventilating buildings. He remarks that "it is simple in construction, and can easily be applied to any building."

Healthy Furniture and Decoration, by Mr. R. W. EDIS, F.S.A., is an illustrated manual, in the perusal of which a wide circle of readers is likely to feel interested. The householder and house-hunter will equally feel indebted to many of the hints which Mr. Edis conveys; while the illustrations of his manual serve to convey clear ideas regarding the various details treated in the text.

Mr. E. W. GODWIN'S handbook takes for its title *Dress, and its Relation to Health and Climate*, while his pages are plentifully illustrated with figures of the various costumes which from time to time have served the purposes of fashion and utility. The author has adopted the historic method in dealing with his theme, and leads his readers from the Egyptian period to the dress of the pre-

MEDICAL AND SANITARY EXHIBITION, 1881.—REWARD OF MERIT.—INTERNATIONAL HEALTH EXHIBITION, 1884.—Stand 69.—DIABETES. Van Abbott's Gluten Bread, and all other suitable Foods for Diabetics, Dietary Table, Menu, Cooking Receipts, and Price List, post-free on application. DELICATE CHILDREN. Van Abbott's Hypophosphite of Lime Biscuits, for Children suffering from Debility, Deficiency of Bone, or Ricketts. See the *Lancet* and HEALTH. CONSTIPATION. Van Abbott's Bran Biscuits. DYSPEPSIA. Van Abbott's Malt Biscuits. Van Abbott's Vegetable Bread and Milk, Saccholac for Infants, Imperial Granum, Rolled Avena, and all American Cereals for Infants and Invalids. Hathorn Table-Water direct from the Springs in Saratoga, U.S.A. G. VAN ABBOTT, 5, Princes-street, Cavendish-sq., London, W.—[ADVT.]

sent day. The remarks of Mr. Godwin on the various styles of dress, and his criticisms of their health-aspects or the reverse, are always sensible and to the point. The handbook compiled by an art authority of Mr. Godwin's excellence could not fail to be attractive, and we apprehend his manual will be one of the most popular in the whole series. Mr. Godwin looks forward to a time when "everything that is healthy shall be beautiful, and every beauty shall be healthy." If the precepts he inculcates in his book could be fully followed out, there can be little reason to doubt that this eminently desirable result would be greatly hastened in its advent.

Athletics: or Physical Exercise and Recreation (Part I.), is the title of the handbook which the Rev. E. Warre, of Eton College, has contributed to the series. The author is well known for his encouragement of healthy sports among the boys with whose educational career he is so intimately associated, and his book will, therefore, be read with attention as the work of one who has had a large practical experience in directing and guiding the health-studies and exercises of which he treats. This manual, moreover, is highly interesting from the scientific and masterly fashion in which the problems of physical training are treated. Athletics in ancient times, their development in the individual, social athletics, universities and public schools in relation to physical exercise, rowing, training, the Volunteer service, and exercise for children, women, and persons of mature years, are the topics under which Mr. Warre contrives to convey a large amount of information of most practical kind. To all young persons Mr. Warre's book may be recommended as eminently worthy their attentive perusal. No better reply could well have been framed to those who argue against physical exercise than is contained in Mr. Warre's pages. It is the merit of the handbook that throughout its author adopts a tone of moderation, and writes from a standpoint in which physiological science and sound sanitation are combined.

The handbook entitled *Diet in Relation to Health and Work*, by Mr. A. Wynter Blyth, Medical Officer of Health for Marylebone, introduces us to a thoroughly practical field of sanitary science, and deals in a highly instructive fashion with the economics of diet, the nutritive values of the various food-stuffs, and their relations to the dietaries which are suitable for different phases of work and health. As a popular treatise on "foods," this work is of thoroughly reliable kind. Full information is given respecting the various classes of food and their composition. As a physiological handbook to the knowledge of nutrition and its various methods, Mr. Blyth's work will take high rank. For students, no less than for the general reader, the manual before us will be most acceptable, containing, as it does, a full fund of information regarding subjects which form the very basis of all sound health-knowledge.

Mrs. Gladstone contributes to this series of handbooks a little *brochure* on *Healthy Nurseries and Bedrooms, including the Lying-in Room.* To mothers, and housekeepers at large, this little work will prove highly acceptable. It gives the reader, within reasonable compass, all needful advice regarding the care of the nursery and the sanitation of sleeping apartments. The section devoted to preparation for the cares of maternity is equally carefully written, and contains much that every mother should know.

Accidental Injuries, their Relief and Immediate Treatment: How to Prevent Accidents becoming more Serious, is the title of the volume written for this series by Mr. James Cantlie, Assistant-Surgeon to Charing-cross Hospital. On the whole this little work is to be commended for its clear exposition of the principles of ambulance work, but it bears traces, to our mind, of hurried preparation; and while the illustrations are, as a rule, excellent in character, it is to be regretted that in more than one case the author has had to affix a note indicative of defects in the drawing. Thus, when we learn that in cut No. 28, "another bandage" should have been figured; that in illustration No. 8, the thumbs of the operator in compressing a blood-vessel are represented "a little too low down," &c.; and that in a bandage for the foot (Fig. 26), "the knot should have been below," whereas in the cut it is drawn above, we cannot avoid expressing the opinion that a little care in revising the cuts, and a little additional time spent in their preparation, would have enhanced the value of the book. Public teachers cannot be too careful in exercising stringent care in the selection and preparation of the material which is intended for presentation to their learners' comprehension. Again, in the section dealing with "choking," the directions strike us as being somewhat deficient. No mention is made of the necessity for placing a gag of some kind in the patient's mouth in attempting the removal of a morsel obstructing the windpipe. Apart from these defects, the manual will be found highly serviceable by all. There is a woeful lack of ambulance knowledge on the part of all classes—witness the prevalence of fatal drowning accidents, in many of which no attempts at restoration are even begun—and Mr. Cantlie's manual will fulfil a useful purpose if it induces the public to study more carefully the principles according to which first aid may be satisfactorily rendered to the injured.

Index to Subjects and Papers read in the Department of Public Health. National Association for the Promotion of Social Science since its establishment in the year 1857. By J. L. Clifford Smith, Secretary of the Association. (London: 1, Adam-street, Adelphi, W.C. 1884.)—This highly useful index will be found of service by all engaged in sanitary work. Any subject can be referred to at once, and the names, dates of the papers read, and the volumes of the transactions in which such papers are contained, can be seen at a glance. Mr. Smith deserves high praise for the compilation of such a valuable index.

Mortality in the English Navy.—A return has been issued relating to the Navy which, among other facts, states the number of lives lost in the service during the past ten years, excluding mortality from natural causes and from war. The total for the ten years is 1,703, of which 1,060 were due to drowning; 423 to wounds, injuries, and explosions; 172 to falls from aloft; and 48 to suicide. Considering that nearly 50,000 officers, seamen, and marines are constantly afloat, the yearly average of deaths from these causes may be regarded as small, except when it is disturbed by catastrophes, such as the sinking of the *Captain*, or the explosion on board the *Thunderer*. In the past decade, during which nearly 250 ships have been in commission each year, only seven vessels have foundered, while the strandings and collisions were 63 and 228 respectively. There were also 358 accidents of a minor character, not including gunnery casualties.

Powngeby's Pure Wines and Brandies, as analysed, and especially selected to suit medicinal purposes, may be obtained in small quantities at wholesale prices. Free delivery within fifty miles. Circular and price current by post from Powngeby & Co., Wine and Brandy Importers, 183, Oxford-street London, W.—[Advt.]

Scott's Midlothian Oat-Flour.—There is no preparation which can be assimilated with greater facility than such a flour as this. Those who suffer from indigestion might substitute for their ordinary breakfast materials this flour, prepared according to the recipe given by Messrs. Scott and printed on the tins.—Ed Health.—[Advt.]

Sanitary Appliances, Etc.

AN INSTANTANEOUS WATER HEATER.

WHILST most houses possess a bath-room, there are many domiciles in which the luxury of a hot bath cannot be enjoyed without a vast amount of trouble and inconvenience. In such cases it is satisfactory to know that the advantages of a supply of hot water can now be had at the average charge of 1d. per bath as the cost of the gas used in heating the water. This desirable result is attained by the use of Shrewsbury's "Calda" water heater. Where a bath of any kind exists, the "Calda" can be used readily. It consists of a kind of urn holding the quantity of water necessary for the bath, and filled by a special inlet. A gas heater is situated in the lower part of the urn. When the water has attained the proper temperature, a tap is turned on, and the heated water flows from the "Calda" into the bath. The advantages of the "Calda" are found in its quick action (from 20 to 25 gallons of water can be heated in from ten to twenty minutes, according to the size of "Calda" employed), and in the fact that the water does not come in contact with the gas; while in action it is free from smoke, smell, and danger. The prices of the "Calda" vary according to size. For lavatories, pantries, nurseries, and other situations in which a hot water supply is desired, a special "Liliputian Calda" is made and sold at a cheap rate. Full particulars regarding these useful addenda to the household can be obtained from the patentee, Mr. Shrewsbury, of 59, Old Bailey, London, E.C.

Our Letter Box

"Conference [maketh] a ready man."—*Bacon.*

NOTICES TO CORRESPONDENTS.

All Communications for the Editorial Department (including specimens of Sanitary Appliances, &c.), to be addressed to "THE EDITOR OF HEALTH," 74-76, *Great Queen-street, London, W.C. Those intended for the Publishing Office to be sent to* "THE PUBLISHER," *at the same address.*

Contributors are requested to send stamps for the return of the MSS. *in event of non-acceptance. Every care will be taken to ensure the safety of* MSS., *but the* EDITOR *and* PUBLISHERS *cannot hold themselves responsible for accidental loss.*

Correspondents are requested to write on one side of the paper only. The EDITOR *disclaims responsibility for the opinions expressed by Correspondents.*

INHERITANCE OF ARTIFICIAL INJURIES.

SIR,—Referring to the important subject of heredity in relation to injuries, ventilated in your columns some time ago, the following fact may be worthy of record:—Before I was out of my *teens*, I was very much teased on account of my heavy eye-brows; which had a tendency, moreover, to meet in the centre over the nose. Being anxious to clear away some of this redundant growth, I applied a small quantity of a strong depilatory to the nasal end of the right eyebrow as an experiment, intending, if the result were satisfactory, to extend the application. The result was, however, eminently unsatisfactory—in two ways, in the present and in the future. 1. The hair, which was only removed superficially, grew again; but this time it bristled up at the denuded part; and though, with the lapse of years and continued brushing, the original smoothness has been to a great extent restored, there is still a tendency to rebellion. 2. One of my daughters, who is "the image of her father," inherits the heavy eyebrow, toned down to feminine proportions and, in her case, very presentable; but *the rebellious corner is there too!* The hair bristles up, and won't go down.—Yours faithfully,

F. R. C.

CREMATION.

SIR,—It was far from my intention, when I last addressed you in HEALTH, to write in a spirit hostile to cremation, for (*though* a clergyman) I am out-and-out a cremationist as against the present mode of burial. But I believe that cremationists will best serve the object they have in view by welcoming any means by which the present burial nuisance may be put a stop to. It would be wrong to take up the position that cremation, or destruction by fire, is necessarily the best possible way to dispose of the dead.

As to the word "conflagration," it has, of course, a very limited signification, and in view of modern improvements, with a view to economical combustion, it may be taken as equivalent to unscientific burning. But even in a Siemens furnace there must be fire and fuel. And what I said in my previous letter as to inconvenience, barbarousness, &c., will hold wherever such means are employed for disposing of dead bodies.

Personally, I have no feeling against cremation. My "feelings," happily, are all against the present criminal (criminal because insanitary) mode of burial. But cremationists must bear in mind the immense weight of prejudice with which they have to contend. The whole body of the clergy, all the orthodox churches, the popular sentiment generally—these are the forces arrayed against them. It would be well for cremationists to consider why the present mode of burial has held its place so long even among the most refined and cultivated nations. (May not the popular prejudice against cremation have some obscure connection with traditional ideas about the Vale of Hinnom—Gehenna—Hell? This, at least, ought to be borne in mind, that burial, as at present practised, is inextricably associated in the popular view with certain religious doctrines. So much the stronger the prejudice to overcome. But, apart from this, the present mode of burial has an immense advantage in its *privacy*. The body remains in the hands and under the care of the nearest relatives until it is securely disposed of. Under a system of cremation, bodies would be consigned to the tender mercies of strangers for final disposal. It was so in ancient Egypt under a system of embalming, and Herodotus relates what disgusting abuses crept in, and what disagreeable precautions had to be adopted in view of them. Any system which necessitates the formation of a class or caste for the final disposal of the dead must be attended with serious disadvantages. Hence one great advantage of that system to which I referred in my previous letter—destruction of the body by packing the coffin with quicklime. This method—at least in this country—is within the reach of all, and can be applied *at home*.

It is surely rather unscientific of "Cremationist" to cast doubt upon the destructive and consuming power of quicklime. The case he refers to is probably that of Wainwright, where the murderer (either by mistake, or wishing only to keep down smell) used chloride of lime, and not quicklime. The evidence I adduced of the consuming powers of quicklime upon decaying matter cannot be gainsaid. Let the dimensions of Newgate cemetery be borne in mind, let it be remembered that it lies in the heart of London, let the evidence of the warder quoted be taken into account, and there can be no doubt of the all-sufficiency of quicklime from a sanitary point of view.

"Cremationist" also strains a point when he attempts to contrast the "barbarity" of the quicklime process with "the silent consuming fire of the cremation furnace." For one thing, I never used the word "barbarity" (which has a different connotation from the adjective barbarous) in reference to cremation. Then the cremation furnace has certainly no advantage over quicklime in respect of silence. Does "Cremationist" forget the "roaring" fire in the "generator"? The fire of quicklime is far more properly described as a "silent consuming fire" than the fire of the cremation furnace.

To sum up my point is that, if destruction by quicklime can be shown to be *sufficient to abate all insanitary evils*, then it has certain advantages over cremation by fuel, fire, and furnace, in being more economical, more convenient, and less (apparently) barbarous.

It is clearly the duty of cremationists to welcome any means which would accomplish the sanitary reform they aim at, whether by cremation or otherwise; especially any such means which the public generally might, without difficulty, be brought to accept and adopt.—Yours, &c.,

G. B. S. W.

THE FOWL NUISANCE.

SIR,—The following report, taken from the *Observer*, will interest those of your metropolitan readers who, like myself, are suffering from the infliction of the "fowl nuisance":—

"A lady residing in Buckingham Palace-road applied to Mr. D'Eyncourt, begging the assistance of the Court to put a stop to the nuisance of cock-crowing which went on on a neighbour's premises. She had complained to the person keeping the fowls, but without avail, his answer being that he would not part with them unless he was compelled to do so by law. Mr. D'Eyncourt was afraid that he could not interfere, although, no doubt, the applicant suffered serious annoyance. Mr. Safford, the chief clerk remarked that there had been similar applications, and once he drew a summons for continuing a nuisance. Applicant said she had

lost her lodgers. A gentleman who had occupied her drawing-room for eleven years had gone away, the nuisance being injurious to his health. He had left by his doctor's advice. Mr. D'Eyncourt told the applicant that her husband could bring an action for damages in the County Court. Possibly that would put an end to the annoyance."

While the magistrates seem fully to sympathise with the infliction (I heartily wish Mr. D'Eyncourt could be awoke from his slumbers, as I have repeatedly been aroused, at 4 a.m., by the calls of a healthy rooster), it appears they are powerless, in a measure, to abate what can only be termed a source of ill-health and nervous worry. Smoke and fogs one can stand, but crowing cocks and barking dogs are simply intolerable inflictions. One wonders where the special aim, pleasure, or delight can lie in keeping fowls in the midst of a town or a city. I trust the lady mentioned in the above case will bring an action for damages against the proprietor of the fowls. It seems clear—to my non-legal mind, at least—that if the lady loses custom, and is injured in business by her neighbour's fowls, she has as good ground for a fair and reasonable action for damages as if the said neighbour injured her house by a smoke nuisance.

Would you allow me, by the way, to add a question for the solution of your correspondent "Lex," who wrote in your columns of June 27th. He advises (1) an appeal to the law. Well, we have seen with what success the lady has appealed. (2) That we should mix poison with the fowls' food. This last supposition humbly appears to me to be—well, let me say illegal and dangerous. How am I to get at the fowls' food? I can't climb into my neighbour's back yard; I can't demand entry at his front door; and even if I did "doctor" the fowls, would not my neighbour have a clear ground for an action or charge of malicious mischief against me? and would he not simply replace his dearly-beloved birds by others, with throats and lungs which might make my future miseries tenfold times worse than my present ills? Will "Lex" kindly advise again? and oblige yours truly,

A Disturbed Rooster.

QUERIES AND ANSWERS.

We would direct the attention of our correspondents to the fact that, owing to the necessity for sending Health to press early in the week, answers to queries cannot, as a rule, appear in the succeeding number of the journal. Every effort is made to secure punctuality in the replies, but we must ask the occasional indulgence of our readers, owing to the large amount of correspondence, which requires assortment and reply.

We must also request correspondents who write enclosing stamps for copies of Health, to address their inquiries to the Publisher, *and not to the Editor.*

We beg to announce to our correspondents that, save in exceptional cases, or where addresses of medical men, &c., are desired, we cannot reply to inquiries by letter.]

Correspondents will please note that Queries addressed on Postcards are consigned to our waste-paper basket. If information is worth having, it is at least worth a letter.

GENERAL.

Box.—The person you name is a quack of the purest (or filthiest) water. Have nothing to do with him if you value your health.

Nonsuch.—There is no such compound in chemistry. Water is H_2O; and peroxide of hydrogen is H_2O_2.

J. Allan.—We have no connection with, or interest in, the journal you name. Its editor is responsible for whatever opinions it may authoritatively profess. We are always suspicious of any journal which possesses an "Admirable Crichton" for its editor. No man can be a master of all the sciences, however much he may delude himself into the belief that he possesses such knowledge.

Axle.—See our "Tricycle" papers now in course of publication. The "Humber" is noticed in No. 65 Health.

Our Tricycle Replies.—T. Budd. Watch the effect on the veins of the leg of gentle tricycling exercise, with and without an elastic stocking.—Xeno. What you name is often an effect of over-doing tricycling, or, indeed, any other exercise. The record you send shows far too great devotion to the exercise.—A. L. O. We recommend tricyclists to take oatmeal and water as a beverage. Farnworth's Meal or Scott's Midlothian Oatmeal (both advertised in Health) is sold in tins, and can be readily carried.—Secundum Artem. Where aneurism exists, all tricycling or other exercise should be stopped.—Silvester. The headache is probably a symptom of exhaustion; nothing more. Try what an alteration of your hours of exercise will do.—Lady Rider. We shall shortly publish an article on "Ladies' Dress in Tricycling." The paper will be illustrated.—Louisa G. In your present state of health, tricyling is decidedly dangerous.—J. Innes. 1. Wash the feet, before tricycling and after, in tepid water and boracic acid, and change your socks before and after the exercise. 2. Shoes certainly.—B. Burton. Yes; gentlemen's dress for tricycling will be duly described.

Alexander Shaw.—See article on "Disease Germs" in last week's Health.

Tom.—1. Thanks for the cutting. 2. Yes, with pleasure.

Agra.—The term "mesentery" is applied to the membrane which slings the intestine, so to speak, to the walls of the body. The glands of the mesentery are lacteal or absorbent glands, through which the digested food passes on its way to the blood.

George S.—Mandleberg's waterproofs (noticed in a recent number of Health), should suit you. Address Messrs. M., 69, High-street, Manchester, or Cannon-street, London, E.C.

J. T. L.—No; the quantities are too small.

Student.—The effects of inhaling carbonic acid are productive of heaviness, drowsiness, stupor, coma, and finally death, according to the respective amount inhaled. If the blood passing to the brain is charged with a greater amount of this gas than is usual or normal the effect on the brain must, of course, be prejudicial. For a time human beings may exhibit a tolerance to the effects of this gas in impure ventilation, but sooner or later it tells, and more especially on those who have weak lungs. You cannot possibly be healthy or comfortable in an atmosphere charged with this gas. You couldn't have breathed air containing 5 *per cent.*, seeing that the normal state of pure air is ·003 of CO_2 by volume, or from ·03 to ·05 per cent. You must allow for diffusion of gases; it is this which prevents us actually inhaling the breath of a person with whom we are engaged in close conversation. Read up and correct your ideas regarding the quantity of carbonic acid present in pure air.

J. Heys.—The work will be published in about a month or six weeks' time, by Messrs. Longman & Co. Due notice will be given in Health of its appearance.

Pond-Dhu.—We hardly understand your question. Will the following answer it?:—Nutgalls, eight parts; sulphate of iron, five; sal ammoniac, one; sulphate of indigo, one; gum arabic, one-eighth. To be boiled in water, and the paper washed with it, and exposed to ammonia. This renders paper iridescent.

SANITARY.

Cholera.—See to all sources of water-pollution; remove all midden-heaps and refuse-collections in your village; add a few drops Condy's Fluid to the water you drink, by way of testing its purity (by the retention of the purple colour); and use a filter—the Spongy Iron Filter, or Maignen's *Filtre Rapide* will suit you.

John Tait.—The Goux system is in operation at Halifax, we believe.

A. C. B.—Communicate with the Secretary, National Health Society, Berners Street, London, W.

B. A. T. (Leeds).—See the last Local Government Board Report (*i.e.*, for 1882).

Interested.—1. About 30 or 40—not more. 2. Yes, Dr. Hill, of Birmingham, recently read a paper on "Bakehouses" before the Society of Medical Officers of Health. The paper was read May 16, and extracts given in the medical journals.

MEDICAL.

Xenophon.—The symptoms you name are often seen in cases of disturbance of the digestive system, and especially if there has been over-exertion and overwork of either mental or physical kind. Look to your digestion, rest as much as possible, and drink freely of potash water. If your symptoms should continue after such means have been used, however, we should advise you to consult a physician. The fact of your having recently had fever is, in itself, sufficient to warn you of the necessity for care of your health.

W. B. P.—We know the book to which you refer by name, but are not familiar with it otherwise. Send us the publisher's name, and we will make accurate inquiry. Have you seen a little book on the same subject, called "Indigestion and its Treatment," by Dr. Gill, published by Messrs. Churchill, London? This might suit you. 2. The American treatise you send is a quack production. Wherever you find secret nostrums vended at a high price, be prepared to see the "cloven hoof" of the quack. Thanks for your good wishes.

Autolycus.—No need for you to be nervous or alarmed. What you name is quite usual in health, and only impostors make capital out of it. We advise you (1) to continue the cold sponging each morning; (2) to sleep on a hard mattress; (3) to avoid stimulants and to eat light and nourishing food, avoiding tea and coffee, and attending specially to the state of the bowels; (4) to avoid suppers and fluids late at night; and (5) for a time to take a teaspoonful of Fellows' Syrup of the Hypophosphites, in a wineglass of water, thrice daily, an hour before meals. (Give up taking any other medicine. Bromide of potass, taken as you detail, is a depressing medicine, and one calculated to do you injury.) Above all, be cheerful in mind, and take open air exercise in moderation.

Claudius.—Your shortest and safest way of obtaining permanent relief is to visit a good dentist. These teeth will always be sources of pain unless you have them professionally attended to.

Nil Desperandum.—Try injections of cold water or of infusion of quassia, once daily; or, if not successful, try an injection of half an ounce tincture of the perchloride of iron to a pint of water.

W. J. Culver.—See advice to "Asthma" in Health No. 66.

Oceola.—The tonic can be obtained from any chemist.

Dentos.—Take a teaspoonful of Fellows' Syrup of the Hypophosphites, thrice daily, an hour before meals, in a wineglass of water. You require rest, and a tonic. Food to be light, but nourishing. Rest after food is essential, and if digestion is feeble, take Pepsine with your food.

Fifty.—No cause to be alarmed. Simply drink freely of potash-water. A little hock might be added to the potash to make a refreshing summer drink.

J. T. (Hawick).—Simply apply a little pure Vaseline to the irritated parts at night, and wash morning and night with carbolic soap and tepid water. Apply Hazeline as a lotion twice or thrice daily, if there is much irritation.

Charlotte Edwards.—Many persons have a slow pulse as a matter of constitution. So long as the general health is good and no symptoms of any kind occur, we do not think mere slowness of pulse ought to cause anxiety. We should recommend the digestion to be attended to, and a little Pepsine taken with the food. Outdoor exercise is good, but must not be overdone. Glad to assist further, if we can.

J. A. H. D.—Try the tonic, for a time, above recommended to "Dentos;" watch your digestion carefully; rest after food; and let us hear how this treatment suits.

E. C.—1. Trapeze and ordinary gymnastic exercises. 2. Depends on individual constitution, nourishment, &c. 3. Consult index to Vols. I. and II. Health for reference to Dr. Schüssler's Cell Salts—that is the reference you mean. Read Dr. Schüssler's pamphlets (see our advertising pages) on the subject. The account in Health will give you details.

Harold.—Use cold water by aid of an eye-cup each morning. A few drops of laudanum added to the tepid water might also be employed. Avoid night-work for a time, and attend to the ventilation of your room.

Cheston.—1. There is nothing to be done beyond simply avoiding everything likely to disturb digestion. 2. Press out the "blackheads" from the skin; then wash them with Pears' Soap and tepid water, using brisk friction with a hard towel thereafter, and then sponging the part with Eau de Cologne or toilet vinegar. The presence of these blackheads is an indication that your skin requires attention.

Nomen.—(1) Ask your dentist to furnish you with evidence in support of his opinion regarding camphorated chalk? We have used the chalk for years with perfect satisfaction. Statements like those you refer to are easily made—proof of them is never furnished, so far as we have heard. (2) What do you mean by hardening the hands? We do not understand your question. (3) Bathe the feet in boracic acid. (4) No difference in the currents—all depends on the strength of the currents themselves.

G. Rowe.—Try the effect of a little supper taken an hour before bed. This often promotes sleep. A short walk might also be taken. If this does not have the desired effect write again.

Anxious Husband.—In such a case we should advise you strongly to submit the patient to a competent physician for an accurate opinion regarding the source of the fainting. We can send you address of a physician, if desired, on receipt of stamped directed envelope. The Channel Isles are bracing; Dawlish might suit you. See descriptions of "Home Health Resorts," published in last year's Health.

W. S.—Consult back numbers of Health, in which you will find such exercises as you require described. See also Maclaren's "Physical Education" (Macmillan).

Hope.—You probably smoke too much. See to this, and be very moderate as regards tobacco. Rest after meals is essential in your case; and, by way of giving your stomach rest, we should advise you to live for a time on light foods (soup, milk, eggs, &c.), taking little solid food. The tonic you name is not advisable in your case at present. Attend to state of digestive system; take a little Pepsine with your food, and avoid constipation above all. Yours is simply a case for careful regulation of diet.

Whiteone.—1. You need not be alarmed; you are in perfect health. Do not heed what foolish and ignorant companions say to you; your symptoms are perfectly natural to your age. 2. We should imagine that in your case there is nothing wrong or unusual; but if you are desirous of having your mind relieved, consult a surgeon.

S. K. J.—Try, for a time, sulphide of lime powders recommended to "T. H.," in Health No. 64. Wash with tepid water and Pears' soap, and avoid chills. Ten drops *Fer Bravais* taken thrice daily in water will aid your cure. Write again if not bettered.

J. W.—[Your letter was addressed to the *Publisher* of Health, instead of to the *Editor*. Are you not aware that it is the Editor, and not the Publisher, who conducts a journal?] Your digestion is evidently out of order. Give up tea and coffee; and let vegetables and fruits form part of your food. Don't smoke over much; avoid suppers, and rest after your meals. You probably want more outdoor exercise. Look also to the state of your teeth.

Nemo.—Yes; a duly qualified medical practitioner.

Rose Edwards.—No depilatories can reach the roots of the hairs. There are several ways of destroying the hair-roots, the most effectual being that by means of electricity. This (or any allied remedy) must be applied by a surgeon. We can send an address of such, if desired, on receipt of stamped addressed envelope.

Synjon.—Take the tonic recommended to "Dentos" in present number of Health.

Abacus.—Tricycling is dangerous in your case. Do not attempt the exercise, if you are wise; be content with good walking. Did your medical adviser not discountenance the idea?

James Reid.—We know the quack well: he is a pretender of the worst kind. The inner page of the title of his pamphlet should suffice to show you his true character, which is that of a detestable pest of society. You can quote our opinion to him, if you have occasion to encounter him. Resist the attempt at extortion. He knows better than to appear in any court of law.

T. R.—You suffer from a form of skin disease, for which we should recommend you to exercise strict cleanliness, to take, for a time, the tonic recommended to "Dentos" in present number of Health, and, if at all possible, to visit the seaside for change of air. The affected hairs must each be removed by the roots, and as there exists a vegetable parasite causing the affection, little of the following is to be applied as lotion:—Sulphur*ous* acid (not sulphur*ic*), one ounce; water, six ounces. Thereafter, for a daily wash, use part of a lotion, composed of sulphate of potassium, one drachm; water, one pint. Use the sulphurous acid lotion so as to bring it thoroughly in contact with the diseased hair-follicles.

Pompadour.—You did not enclose any pamphlet in your letter. Our advice to you is to read our review of Dr. Ebstein's book on "Corpulence," in Health No. 57, and if the information there given is not sufficient, purchase the book (it is a cheap one), and study his method for yourself. Dr. Ebstein is the latest and best authority on corpulence.

George G.—You suffer from indigestion. See to your food; avoid suppers; rest after meals; take open-air exercise; and try the effect of taking a little Morson's Pepsine with your food for a time. Avoid constipation, and see to the state of your teeth. A visit to the seaside will do no harm.

B. T.—You should have your throat examined by a surgeon. Irritation of the tonsils, or even the uvula (in the middle of the throat), often gives rise to cough and irritation. If nothing of this kind is at the root of your trouble try the effect of inhaling twice or thrice daily the vapours arising from a pint of hot water to which ten drops tincture of iodine have been added. Inhale for five minutes at a time. Look also to your general health. A little cod-liver oil would be likely to do good.

Juno.—At your advanced age we should hesitate to recommend any operative interference, unless, indeed, the growth troubles you at all, in which case a surgeon's advice is necessary.

Athenian.—Always glad to hear from old friends. The practice is not desirable as a continuous one, on the plain principle that Nature should be able to completely discharge a natural function; but we believe your plan is as harmless as any, and decidedly less hurtful than most crude attempts at remedy. Have you tried any of the Cascara Bark preparations? See Dr. Craig's article in Health No. 63, entitled "A Valuable Remedy." We do not think the small "growth" you name should cause you any concern, so long as there is no pain. Try an application thereto of Hazeline. Thanks for all good wishes. Health is on sale in Edinburgh regularly, and has an increasing circulation in the North.

Silenus.—No; we fancy your doctor's advice as to the alcoholics

[*Continued on page* 240.

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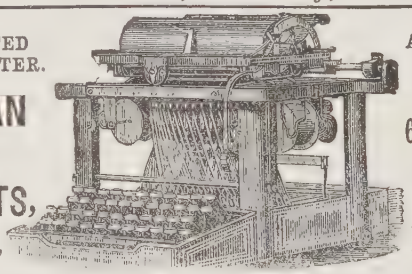

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is very suitable. The true test of its worth is the effect of following it, and, as we gather, it has done you good, we should say continue the alcohol, well diluted, at meals. Try the effect of a vegetable and fruit diet as a preventive of constipation. For the throat affection try the simple iodine inhalation recommended to "B. T.," above.

Fred Dickson.—Why should it be a matter of surprise to you that continuous work from 9 a.m. to 8 p.m. is injurious? Surely common sense would enable you to judge that such strain is bad, and your own nervous state and headaches form the proof of the correctness of our opinion. You suffer from overwork—that is all.

Edina.—Try as a lotion to the hands, a mixture consisting of bicarbonate of soda, one drachm; added to one and a half ounce of glycerine. If not bettered, write again.

H. A. J.—We agree with you the matter is an important one. Our reply is that all depends on individual health, work, and temperament. What may suit one will not suit another, and so on. As a rule, we should think the exercise might be taken once or twice weekly on an average. Judge for yourself, by the effect on your general health.

Uriah Heep.—See to your general health. Take for a time the tonic recommended to "Dentos" above, and bathe the hands frequently in water in which a little boracic acid has been dissolved. The pamphlet you send is a quack production of the most typical kind.

Scrutator.—We do not think you should regard the symptoms which distress you as a cause. They are really the result of low health, like your rheumatism. If desired, and if you send us a stamped addressed envelope, we can send you the address of a competent physician well accustomed to treat cases like yours, and who will thoroughly examine you and give you a sound opinion. The gentleman whose name you mention, and whose book you send, is a duly qualified physician.

A. S. N.—We think you should try the effect of wearing a suspensory bandage constantly for some time. Let us hear how you are after a time, when, if not relieved, we may recommend a further remedy. If the pain is very severe paint the part with belladonna liniment, or with glycerine of belladonna.

Iago.—We should be very glad to assist you, but, in our opinion, you should undergo a thorough examination (when in London) by a competent physician. Such an address we can send you on receipt of stamped, addressed envelope. Meanwhile, we recommend you to try the tonic ordered in present number of Health to "Dentos." Try this for a time, and let us hear how you are. Food to be very light, and hours of work less prolonged. You certainly require more open-air exercise, and an easier mind would certainly benefit you. Glad to be of any further service; but we again repeat our opinion that your case is one for a careful medical examination.

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HEALTH

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, JULY* 25, 1884.

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Notes by the Way

"Health is the foundation of all our physical happiness."—*Herder.*

As we write, the cholera epidemic seems still on the increase in France. The French nation is only reaping in such visitations the full and complete reward of the neglect which has prevailed in France regarding sanitary details of even the most commonplace description. As yet, we are free from cholera; but even should the disease be introduced, our sanitary measures are amply sufficient to check its progress. No alarm need be felt at the occurrence of a few detached cases of cholera, or of that somewhat ill-defined ailment which receives the name of choleraic diarrhœa. Prompt isolation of such cases and effectual disinfection will be practised on every occasion, and we may rest content that "forewarned," in a health sense, is to be doubly "forearmed."

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In view of the cholera-visitation in France, the state of the water-supply of Paris forms an extremely *à propos* topic. It seems that the city has a total available daily supply of about 100 millions of gallons. This, for a population of between $2\frac{1}{4}$ and $2\frac{1}{2}$ millions, is to be regarded, says M. Wazon, as inadequate. In 1886, when the population will have increased to the last-named figure, the supply would give 40 gallons of water per head per day. But, as part of this supply runs into the fountains, along the gutters in the streets, and is also used for street-watering purposes, the supply of 40 gallons per head is seen to be reduced to anything but a satisfactory amount. Add to this fact that in Paris the domestic water-supply is very scanty, and that the sanitary fittings of the houses are, as a rule, deplorably inefficient, and we may imagine how easily Paris may become converted into a hot-bed of disease. In that city, too, the Municipality compels householders to deliver all the rain-water and household waste into the sewers. Storage of rain-water is, therefore, unknown, and this source of supply is denied to the Parisians; another fact which should demand attention from the sanitary legislators of France.

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A highly useful institution in the shape of a Convalescent Home for scarlet-fever patients has been opened at Stanmore, near London, by the Prince and Princess of Wales. The Home was founded by Miss Mary Wurdell, and can accommodate forty patients. Owing, however, to want of money, only some twelve beds are at present available. The multiplication of such Homes is a desirable feature of our modern hospital system. Their establishment would tend to relieve the immense pressure to which, in times of epidemics, ordinary hospitals have to submit. The further good of providing for the complete restoration to health of patients during the later and infective stages of the disease, must not be overlooked.

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An interesting pamphlet has just been issued by Messrs. Allen, of 13, Waterloo-place, London, in the shape of an article, reprinted from the *National Review*, by Mr. Albert J. Mott, F.G.S., and entitled "Alcohol and Total Abstinence." With the logic and conclusions of the writer it is not likely that the more bigoted of the total abstinence section will agree. But there are considerations and facts advanced by Mr. Mott which should receive the attention of thinking men on both sides of this controversy. The author, speaking of the National Drink Bill amounting to £130,000,000 per annum, says it is assumed that this is the cost to the nation, that it is an extravagant amount, and that most of it is paid for vicious self-indulgence. The first and third of these assumptions he regards as untrue, absolutely; while the second is "equally so, if alcohol is used at all as a national beverage."

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In truth, it has always seemed to us that Mr. Hoyle's annual "drink-bill" calculations were susceptible of modification, especially from that side of the argument which tacitly assumes that the total cost of the drink consumed is chargeable against the nation. We do get a return from our £130,000,000—the sum paid out of this amount for cost and profit of distribution is between 50 and 60 millions, and merely represents a transfer of value from one hand to another—"for capital used and services rendered," as Mr. Mott puts it. The taxation on the drink-bill is £30,000,000, while the cost of the beer, wines, and spirits themselves is £45,000,000. Everyone agrees that the repression of drunkenness is a most desirable end and feature of legislation—perhaps, better still, of education; but true progress may be as greatly hampered by over-zeal as by lack of interest and half-heartedness. It is to Mr. Mott's credit that he has placed the drink question in a new phase, and has given all classes "food for thought" in the pamphlet to which we have drawn attention.

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Cargoes of rags from Marseilles recently arrived at Hull and London. As sources of disease, rags are only too well known. Hence it is gratifying to note that at both ports efficient measures were taken for the thorough disinfection of the cargo, all danger to health being thus avoided.

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Mr. Henry Carr, M.I.C.E., delivered an interesting lecture on "Domestic Poisons," at the International Health Exhibition, last week. Speaking of the detection of arsenic, he remarked that Reinsch's test for arsenic could be used by any intelligent person. As several correspondents write to inquire of us what Reinsch's test is, we think it may prove serviceable to all if we give particulars regarding it.

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A piece of bright copper foil or gauze, of pure character, is attached to a piece of platinum wire. The copper is

placed in a test-tube containing the suspected fluid, and the latter is duly boiled. The liquid, however, must be of an acid character before the action of the test can be thoroughly carried out. On being boiled, the arsenic contained in the solution is deposited on the copper, and forms a greyish stain, if only a small quantity of arsenic has been present. If larger quantities are present, a glistening appearance, resembling black-lead, may be seen on the copper. As mercury, antimony, and other metals likewise stain copper, it is necessary to further examine the character of the deposit which has been obtained. The arsenical stain is a true alloy with the copper, and is found to give crystals of arsenious acid (white arsenic) when heated to a sufficient degree.

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THE *Lancet* has been directing attention to the question of Patent Medicines and the Stamp Duty existent in connection therewith. The mysterious 1s. 1½d. which the customer pays for his bottle of "patent medicine" is explained by the fact that the odd pence cover the stamp duty—the stamp in question being affixed, as every one knows, to the wrapper of the bottle. The revenue from this duty amounts to £150,000 per annum. The evil of this "stamp" practice has been forcibly pointed out by the *Lancet*. The public are, firstly, led into believing that the Government stamp is, somehow or other, an authoritative sign-mark of the genuine character of the medicine; and this idea is often fostered and encouraged by the statements which are contained in the printed descriptions invariably accompanying such medicines. That the public have no such guarantee against quackery or impurity can hardly be too strongly insisted upon. Again, it is probable that in most cases a profit on the stamp itself is made by the patent-medicine vendor, and the consumer is thus mulcted and made to pay not the regular duty, but twice or thrice that amount.

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IT has likewise been pointed out that the Stamp Act dates from 1812, a period when most of the drugs and principles now used in medicine were undiscovered. As the Act contains a clause to the effect that all medicines manufactured without the bounds of this country (excepting crude drugs) are liable to be taxed under its provisions, it can readily be seen how serious is the barrier which such a practice will interpose in the way of free pharmaceutical work and advance. We trust the Government will see its way to avoid pressing this undesirable and, in our opinion, vexatious clause. The extension of a knowledge of the ways and means of healing and the importation of the valuable medical products of other lands are synonymous terms. We need hardly add that if the duty on medicines be made to apply in the manner indicated, the poor will suffer most severely from the incentives to adulteration which will inevitably be encouraged.

SANITARY INSPECTIONS.—Fee for Survey and Report, in London, 2 Guineas. Estimate given and Improvement Works carried out when required.—THE SANITARY ENGINEERING Co., 115, Victoria-street, Westminster, S.W.—[ADVT.]

SCOTT'S MIDLOTHIAN OAT-FLOUR.—Messrs. A. & R. Scott, of Kingston, Glasgow, and Finsbury-square, London, have prepared a singularly pure and nutritious "Oat-flour," which bids fair to take high rank among the food products which are specially adapted for infants and invalids, and for the use of dyspeptics in particular, whose digestion is weak, and whose stomachs refuse to assimilate foods of ordinary kind.—ED. HEALTH.—[ADVT.]

THE "BONCONTOUR" STAY-BELT and other Orthopædic Apparatus, made by K. R. SCHRAMM, Orthopædic Mechanician, 64, Belmont-street, Chalk Farm-road, London, N.W.—[ADVT.]

Original Essays

"Life is not to live, but to be well."—*Martial.*

ELECTRIC LIGHTING IN RELATION TO HEALTH.

BY W. L. CARPENTER, M.A., B.Sc., &c.

UNDER this title a very interesting paper was recently read by Mr. R. E. Crompton in the Conference Room, at the Health Exhibition, and it was followed by an equally interesting and practically valuable discussion. Some account of both we now present to the readers of HEALTH. At the outset Mr. Crompton disclaimed any intention of making an ill-natured attack upon the gas-companies, and proceeded to point out the physiological reasons why, in *any kind* of artificial light, the conditions of health were not as good as in daylight. These have been clearly described by Mr. André in his papers on "Light and Health," just concluded in this journal. As, however, there is a steady increase in that portion of our life which is spent in artificial light, it is most important to obtain the most healthful substitute for daylight. All artificial lights, including the electric, were deficient in intensity, and especially in the violet and actinic or chemical rays. The diffused light of even a number of arc-lamps could not be compared with daylight.

It is important to remember that all artificial illuminants except the electric light, contaminate the air to an extent little realised or even suspected by the general public. In Mr. Hammond's excellent little work "The Electric Light in our Homes," a lengthy table is given on the authority of Dr. Tidy, showing the cubic feet of air vitiated per hour by various illuminants burnt so as to give the light of twelve candles. Thus coal-gas vitiates 348 cubic feet of air per hour; paraffin oil, 484; composite candles about 650; and tallow candles, 933, while the electric-light *vitiates none.* The amount of heat produced in the same time is represented respectively by the numbers 279, 362, 383, 505, and for the electric-light only 14. The air of a room, therefore, lighted by gas is *heated twenty times as much* as if lighted by incandescent lamps. Some very remarkable health statistics were given as the result of lighting the Birmingham Town Hall electrically at the musical festival of 1882, and letters were read from eminent soloists and from members of the orchestra and chorus, testifying in the strongest terms to the beneficial results of the change.

The criticism on the glare of the electric light was not, in Mr. Crompton's opinion, a justifiable one. If we gazed directly at an arc lamp, we might be conscious of glare, but the same remark applied to the sun; the real test was the intensity of the diffused light. The most experienced oculists asserted that more than half the diseases of the eye arose from insufficient and from unsteady light. An electric glow-lamp was absolutely steady; and, as might be seen every night at the Health Exhibition, the arc-lamps were now wonderfully steady also. Since the introduction of the electric light into the letter-sorting rooms at the General Post-office, the eyesight of the men employed had improved in a measurable degree; and, in several instances, they had been able to discontinue the use of spectacles, not only by night but also by day.

There were also many indirect advantages from the electric light—such, for example, as the additional pleasure derived from flowers, pictures, dress, and all coloured decorative objects, and the general sense of exhilaration promoted by a plentiful supply of pure, white, well-diffused

light. Moreover, in winter it was impossible properly to clean the rooms of an ordinary house, since gas burnt for that purpose in the early morning made the rooms feel so close that its use was generally countermanded, whereas the electric light similarly used enabled proper cleaning to be done without injury to the air of the room. Again, in warm weather, windows and doors of electrically-lighted rooms could be all open, without any fear of draughts such as were caused directly gas was burnt, when the air of the rooms became much hotter than the external air. In children's rooms the advantages were very great, the air was kept pure and cool, and there was absolutely no risk of fire, and no lucifer matches were wanted. Both children and servants were able to manage and control it perfectly, and in nearly two years' experience in his own house Mr. Crompton had had no difficulty from this cause. Mr. Swan and others bore similar testimony.

In the discussion which followed, as no speaker ventured to controvert the positions taken up by Mr. Crompton, most of the remarks were directed to the question why it was so difficult for householders to obtain these advantages. Mr. Willoughby Smith created much amusement by declaring that the British public had subscribed twelve millions sterling for the electric light, *and had not got it!* Several speakers bore very strong testimony to the desire on the part of the public to have and to use the light, and an interesting account was given of what had just been done in this direction at Colchester. Mr. Swan pointed out that the legislature did not recognise that the electric light was an infant which needed nursing, and suggested as a practical outcome from this conference, an agitation to amend the Electric Lighting Act, which very much over-protected the public. In summarising this discussion, and replying to questions, Mr. Crompton said that electricians had very much more knowledge now about the proper conditions of lighting than they had a few years ago, when the British public went in for shares with a rush, exactly as they did in the early history of railways. Now, as then, there was a lull, and the reason the electric light was not offered on a large scale, co-operatively, was—want of money; it could not readily be carried out on a small scale, individually, for want of room to put down the necessary machinery (such as a gas-engine and dynamo-machine) in each house. The danger from electric lighting was not one-hundredth part that from gas. He wished it to be widely known that the companies were ready to light small groups of houses, but under present laws, they were prohibited from carrying their wires across a street, since the Post Office had a monopoly of that, and hence such a small group of houses must be confined to one side of a street. That was one instance of the way in which the companies were hampered by legislation. He had seldom listened to a more interesting and useful discussion.

The Cistern and its Dangers.—When families of careless habits look around to discover the cause of the bad taste of their drinking-water they sometimes find strange things. We have ourselves known of the sink waste-pipe being turned directly into the cistern which supplied the sink-pump, so that a very perfect circulation for the kitchen slops was provided. Luckily the family did not commonly use this water. It is not a rare occurrence that a rat is drowned in a cistern, but probably that vessel is not usually employed to drown kittens. This, however, did happen in a house in Kensington, England. Several mild cases of diphtheria led to an investigation and the cistern was examined. In it were found the bodies of several kittens tied together.

THE TRICYCLE, AND ITS RELATIONS TO HEALTH.

By Various Writers.

V.—CHOICE OF A MACHINE: LOOP-FRAME FRONT-STEERER.

By Sigma Smith.

In the last paper I described three of the types of machines that I think suitable for general use, and there only now remains of the single machines to mention the ordinary loop-frame front-steerer, which is a great favourite with a large proportion of riders, although it is being supplanted to a very considerable extent by the Humber type and the front-steering central driver, and one or two of the best of the rear-steerers—*i.e.*, those steering by means of a hind wheel.

There are really very few points of structural difference between the several makes of the loop-frame machine, although, of course, in matters of detail, each may have points in which distinctive variety is sought to be arrived at.

This type may be called a very "arm-chairy"—if such a term can be coined—tricycle, and is undoubtedly very comfortable and safe; and I personally have a loving regard for it, having ridden a machine of this class some thousands of miles. Its chief feature of difference from

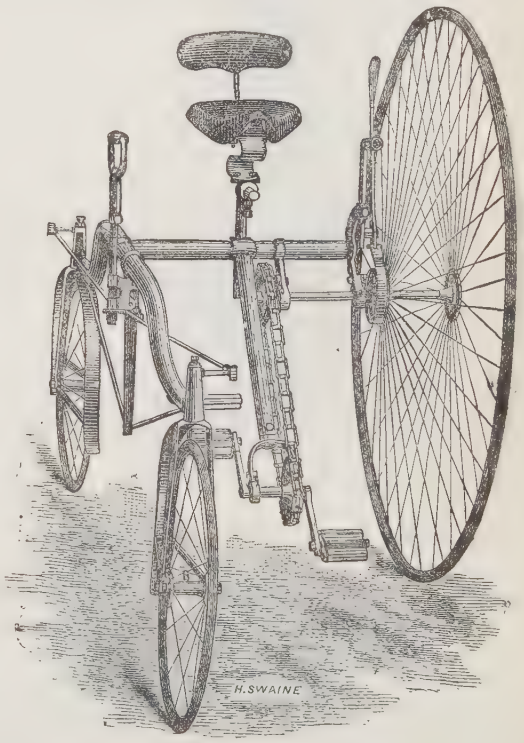


Fig. 1.—The Coventry Rotary (Rudge & Co.).

the front-steerer central driver referred to last week consists in the fact that the cranks upon which the pedals are fixed take the form of a simple rod of iron bent into suitable angles to meet the purpose for which they are designed, the chains and cog-wheels being at the side instead of in the centre; but, generally speaking, the type is a little more cumbrous, inasmuch as there is a greater extent of framework.

All the machines of this class drive both wheels by the aid of differential gear, which permits of turning being

done while in motion; indeed, this feature is common to all the double-drivers, which otherwise would not turn corners at all, but would only travel in a straight line.

I may observe here that single drivers (*i.e.*, machines driving one wheel only) are decidedly not to be recommended, seeing that they require so much extra labour to propel, and will with difficulty ascend hills of any particular gradient. Although as a rule a little cheaper, the single drivers should be carefully avoided, otherwise the rider will be sure to regret it when he gets his machine upon the road. In thus referring to single drivers, I wish it to be distinctly understood that I exempt the Coventry Rotary, which, although it only actually drives one wheel, is still so peculiarly constructed as to warrant an exception being made in its favour in this particular. The Coventry Rotary is well spoken of in some quarters, but I have never had the opportunity of testing it myself for any length of time, and cannot, therefore, speak more at length as to its merits. I cannot say that I like the mere look of it, but it has certainly the advantage that it will pass through an ordinary narrow doorway, and is said to be easy of propulsion.

Fig. 2.—The Premier Loop-Frame Front-Steerer.

To return to the loop-frame type. For many reasons this is, in my opinion, the best form of tricycle for lady riders. The steering wheel is in full view in front, so that the rider can see exactly how her wheel turns when she moves the steering rod, and this is, I find, a point to which many ladies attach considerable importance, immaterial as it may appear to the practised hand. It would seem that the female mind prefers not to take things for granted, and the nervous lady rider is not content to *assume* that her steering-wheel will follow the controlling movement of the steering-handle, but likes to *see* it do so with her own eyes. However it may be, this feeling induces the lady rider to select the front-steerer in preference to a machine the steering-wheel of which is behind, out of sight, and hence they instinctively make what is undoubtedly the proper choice. I am so much in accord with the general abstention from rear-steering tricycles, not only by ladies, but men also, that I think it would be well if they were to be abandoned altogether in favour of front-steerers, which are just as easy to make. At one time, some years ago, I was the owner of a rear-steerer, and while I must admit that in some particulars it was by no means to be condemned, but the contrary, I found it at times rather erratic in its steering at a high speed and down hill, and I was glad to give it up, and take to the front-steering machine, which is free from any such vagaries, and is perfectly safe and steady, even at the highest speeds. I do not advocate the promiscuous "flying" of hills, but it is a fact that with a front-steerer this can be done at absolutely any speed with perfect safety, the machine following the steering-wheel with wonderful steadiness, even at the highest speed, and even when the road is not altogether even in surface.

The best machines of the loop frame type are the Coventry Machinists' Imperial Club (of which a sketch was given in No. 63 of HEALTH), the Premier (Hillman, Herbert, & Cooper), the lighter Salvo (Starley Bros., Coventry), and the Apollo (Singer & Co.).

The Coventry Machinists' Company deserve special mention for their Spring Frame Imperial, in which the base is fixed upon a bed of four coiled springs, which, aided by the saddle spring, effectually prevent any jarring from rough roads reaching the rider. A sketch of this arrangement is here given, and speaks for itself.

Another good machine of this build is the Omnicycle, which, instead of rotary pedals, has an up and down motion. The agents for this machine are the Bicycle and Tricycle Supply Association, Holborn-viaduct. It is a strong and reliable tricycle; and, though I have never

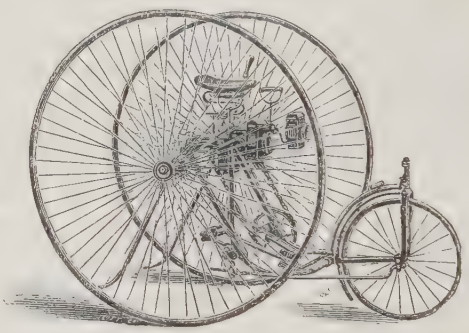


Fig. 3.—The Rucker Loop-Frame Front-Steerer.

ridden it myself, I have been assured by a gentleman in whom I have every confidence that it possesses many features to commend it, and travels very easily at a moderate pace. I am inclined to think that the rotary motion is less fatiguing and more sightly; but those who think otherwise would find their ideas provided for in the Omnicycle. It is, however, rather heavier than I like; but against this must be placed its undoubted strength and lasting properties.

Of course there are numbers of other machines of all the several types named, and I could, in fact, fill a volume with descriptions, but I have merely sought to indicate in these papers the machines that I know to be good and reliable, and avoiding any technical detailed description (for which there is not space, and which would, in fact, only bewilder the tyro), have confined myself to the bare mention of the several makes that can be recommended, and in doing this I have been guided by my long experience and judgment.

I have confined my notice to a few machines that are most undoubtedly good, and which I deem to be the best, and have made the list as short as possible for fear of bringing about the same confusion of ideas that attends a promiscuous reference to the heterogeneous descriptions given by the vast number of makers who issue price-lists.

When referring to the Front-Steerer Central-Driver, I should have included one other machine of this year's pattern—viz., the "Matchless," the product of the Bicycle and Tricycle Supply Association, Holborn Viaduct. This machine is certainly a good one for the steady-going rider, but it is so constructed that it can only be used geared level, and the size of the wheels is fixed at forty-eight inches. Instead of chains, usual in cases of nearly all machines of the front-steering type, the Matchless is driven by three rods, which actuate the axle direct, the axle being bent to angles suitable for the purpose, and so as to avoid dead points. I have closely examined this machine, and though I have never tried it on the road, I have questioned

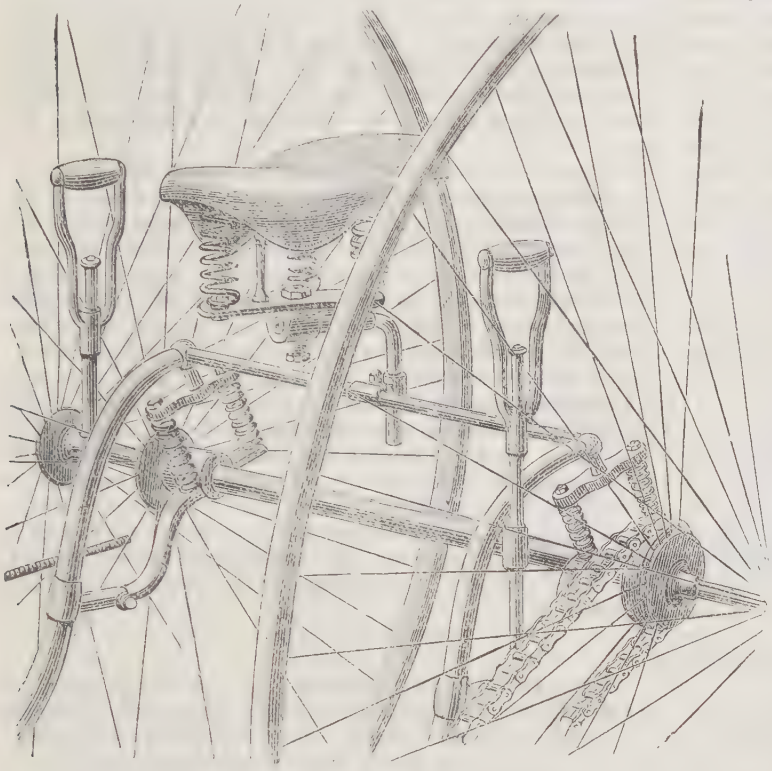


Fig. 4.—Spring Frame Imperial and Saddle Springs.

those who have, and the general result of the novel mode of driving is very highly eulogised, while my own examina- is such as to lead me to think well of the machine.

Putrefaction destroys organic matter without the influence of oxygen; it breaks up organic compounds, and destroys organisms. The evidence seems to indicate that it destroys even those bodies that produce disease, but that in certain conditions it produces others. This is a point not to be enlarged upon without more knowledge, but it is evident that, by putrefaction, we get rid of an enormous amount of offensive matter. Oxygen cannot enter under the surfaces of actively putrefying bodies; but wherever it is allowed to enter by the putrefaction being less active, an action begins which in time completes the destruction of the body. We are not, therefore, to suppose that the germs of disease can resist all these efforts of Nature to destroy noxious things, nor are we to suppose that an invisible germ of disease can pass on from stage to stage unaffected by the putrefaction of sewage and the action of air. We must believe, for the present, that it is not so. In water we see perfect purification, nitrogen itself being lost.—*Dr. Angus Smith.*

Personal Health

"Be timely wise;
With health all taste of pleasure flies."—*Gay.*

THE LADIES' SANITARY ASSOCIATION AND GYMNASTICS FOR GIRLS.

By Ada S. Ballin.

Ever since its foundation in 1857, the Ladies' Sanitary Association has been quietly and unobtrusively getting an amount of good work done which is quite surprising, considering its very modest means. It began with health-lectures to ladies; but soon after the capital idea of publishing tracts on matters connected with health was suggested, and has been carried out in a most satisfactory manner. Eighty such tracts, written in simple language, but edited by scientific men, have been published, and the publications of the association have had a circulation of nearly *two millions*, and have been translated into several languages. About a hundred and forty courses of lectures on physiology, public health, gymnastics, chemistry, cooking, and nursing, have been given under the auspices of this association, which has also opened day-nurseries, superintended the cleaning of houses, lent cleansing materials, formed clothing clubs, and even a company for building suitable dwellings for the poor. It has given or lent baths, cooking utensils, nursing appliances, disinfectants, patterns for clothes, books, models, and diagrams, and bore all this on an average income of £350 a year. I am glad to learn that many branch associations have been formed, and I think the work of the institution has only to be made more widely known among English ladies for it to gain a great number of new and active members. At the Health Exhibition, in the Eastern Quadrant, Class 18, No. 62, the association has a stall for the sale of its publications, and I cordially recommend visitors to the Exhibition to inspect these pamphlets and leaflets, which, to my mind, seem to herald the coming of a sort of sanitary millennium. Let them look, for instance, at "Hints on your Health," in rhyme, price 1d., which is mounted to hang against the wall, and say whether it will not worthily replace the well-meaning but often inapplicable texts which our good folks are so very fond of distributing to their poorer brethren.

The Ladies' Sanitary Association had always taken a great interest in the physical education of girls, and on the 3rd inst., I had the pleasure of witnessing a demonstration of gymnastic exercises given at the Health Exhibition under the Association's auspices, by the pupils of Miss M. A. Chreiman. A short notice of what took place on that occasion will, I think, be interesting to the readers of Health. The want of physical education for girls is at last beginning to be acknowledged. Muscularly, girls are, as a rule, very poorly developed, and some system is required by which every muscle of the body shall be exercised, without any one of them being overstrained. The Ling system professes to give the necessary amount of exercise, but I must say that, having witnessed a

Swimming and Ling's Swedish Exercises.—Mrs. Florence Williams, Certificated Teacher. Schools and private families attended.—The Crown Baths, Kennington Oval, S.E.

demonstration of it by a number of Board School girls under their teacher, Miss Bergman, I came to the conclusion that though it might be very suitable and advantageous to girls of the lower classes who will have to do a great deal of rough work in life, the violence of the exercises would render them unsuitable for young ladies. For these, it seems to me hardly possible that a better system could be invented than that elaborated by Miss Chreiman. While many of her exercises are original, she has borrowed the best from other systems, English, American, German, Swedish, and Spanish. The exercises not only develop the muscles, give firmness to the joints, and develop the respiratory system of those who practice them; but they heighten the voluntary control of the muscles, cultivate the faculty of attention, and make the girls graceful in pose and movement. To people subject to those involuntary movements of the muscles, the worst form of which is that terrible disease St. Vitus's Dance, the complicated, rhythmic, and highly voluntary movements which Miss Chreiman makes her pupils execute would be invaluable both as prevention and as cure.

For the cure of another kind of diseases they would also be most advantageous. I mean curvature of the spine, and rheumatic and nervous affections of the joints. Various kinds of exercises—such, for instance, as those employed at the Zander Institute—are now being brought forward for the treatment of these affections, and are found far superior, both in reducing deformity and promoting the health of the patient, to the old methods of treatment.

But to return to Miss Chreiman's demonstration. On entering the Albert Hall, I found that the area had been cleared for the occasion, and was occupied by a troupe of about seventy young ladies, whose ages varied from six to about twenty-six, if one can judge of age when all are dressed alike in short petticoats. Their costumes consisted of dark blue hose and knickerbockers, with short skirts and jerseys of the same colour, relieved with sashes of red material. They formed a very pretty sight, and in their complicated evolutions reminded me more of an excellent ballet than of anything else.

The programme began with a charming vocal march, the next feature to which was exercises for the fingers and wrists. These would be found especially useful to instrumental players. After this they went through some "free exercises" for the trunk and limbs, and some with light dumb-bells, than which none could be better planned or more graceful. The ball exercises which followed showed wonderful skill, and are calculated to teach an accurate judgment of distances. For instance, in one of these the ball had to be thrown up and the hands clapped *five* times before it was caught again. If any one doubts the difficulty of this manœuvre let him try to do it himself. There were ball exercises, too, for the left hand as well as the right, one of the principal features of the system being the equal development of both sides of the body. After this came respiratory gymnastics, and then "The Spanish Bathers," a graceful sort of ballet consisting of some very complicated evolutions, accompanied by the voices of the dancers as well as by the piano, which accompanied all the gymnastics and guided their rhythm.

A Valuable Invention.—It is gratifying to learn that Mr. R. Adams, of 17, Blackman-street, London, S.E., whose fanlight-openers and silent door-springs are being extensively used, has received large orders for his Patent Reversible Window. The sashes, although they slide up and down in the usual way, can be instantly turned inside out, enabling anyone to clean each side of the glass with ease, while standing in the room.—[Advt.]

Then came light bar-bell exercises, feet exercises for the more advanced pupils, American light dumb-bell exercises, ring exercises, and light club exercises, which last were very remarkable, as the clubs were wielded with a dexterity simply astonishing to the onlooker. The demonstration concluded with some skilfully-executed marches, in one of which the girls, dividing into two parties, seemed to make two wheels, revolving in opposite directions, each of which contained a number of other revolving wheels, something like one sees at illuminations. Everything went without a hitch in a manner perfectly surprising, when one takes into consideration the fact that no rehearsal had been held, many of the girls never having seen each other before, coming as they did from classes held in different parts of London. The health value of Miss Chreiman's system cannot fail to be appreciated by all who see it in practice, and the Ladies' Sanitary Association has done well and wisely in attracting public attention to it.

If such exercises as those I have tried to describe were as commonly practised by young ladies as they ought to be, we should hear and see less of the various aches and pains pale faces, and ill-developed figures which are now so generally associated with young ladydom; the consulting-rooms of physicians would be less crowded, and our orthopædic surgeons would be less exercised in their minds to invent methods of treatment for the various deformities which result from the sedentary and unhealthy lives so often led by our young people in towns. There is a proverb in the Sandwich Islands to the effect that "If the frame of the mother is strong, her sons will become great chieftains." This is true in whatever way we look at it, for great men of all nations have generally had remarkable mothers. This, then, should teach the lesson that we ought to make every endeavour to render our girls strong and well-developed; that accomplished, we may hope great things of the next generation.

Antipathies.—The celebrated Erasmus, though a native of Rotterdam, had such an aversion to fish, that the smell of it threw him into a fever. Ambroise Paré had a patient who could never see an eel without fainting; and another who would fall into convulsions at the sight of a carp. What would have been the effect of an electric eel on these gentlemen? Joseph Scaliger and others could never drink milk. Gardan was disgusted at the sight of eggs. A King of Poland and a Secretary of France bled at the nose when they looked at apples. Henry III., of France, and many others, had a great aversion to cats, mice, spiders, &c. A great huntsman in Hanover, who would attack a wild boar valiantly, always fainted at the sight of roasted pig, if he had not time to run away. These antipathies have been humorously accounted for by the doctrine of the transmigration of souls. Those who had been flies in a former state were horribly afraid of spiders; those who had been mice did not like cats; and those who had been cats did not love dogs, etc. Amatus Lusitanus knew a person who fainted whenever he saw a rose, and always kept in his house when they were in bloom. Scaliger mentions the same about lilies, and Bayle about honey. Bayle himself turned pale at the sight of watercresses; Tycho-Brahé fainted at the sight of a fox; Henry III., of France at that of a cat; Marshal d'Albret at a pig. A lady, wonderful enough, could not endure the feel of silk or satin. A man, not so strangely, was known to faint whenever he heard a servant sweeping. Nicanor swooned whenever he heard a pagpipe; Boyle fainted when he heard the splashing of water.

Healthy Houses

"A happy home must be a healthy home."—*Anon.*

MODERN SANITARY IMPROVEMENTS IN DWELLING-HOUSES.

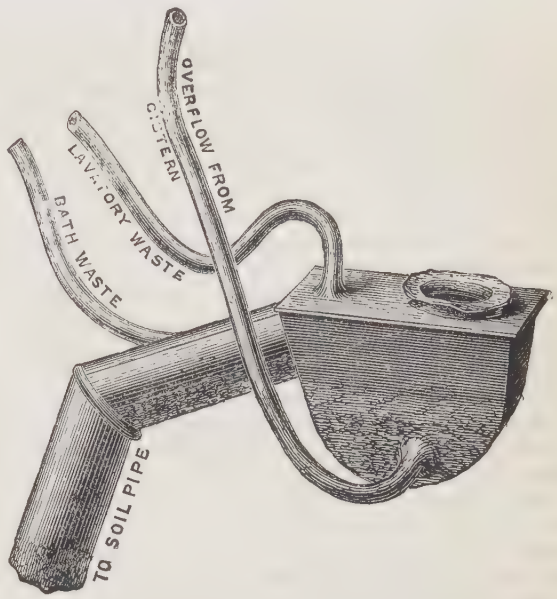
By Henry M. Mayor.

In a multitude of councillors there is wisdom, we are told; and when, as is somewhat unusual, they are fairly agreed among themselves, the combined knowledge should be great. Looking at the combination as presented at the Health Exhibition, for instance, we begin to realise the many risks we constantly run, and the care and precaution taken on our behalf to avoid, or at least to mitigate, the danger which is frequently unheeded, because mostly unseen. The old saying, "It can't be the drains, there are none!" carries with it, under certain circumstances, a degree of comfort unknown to those who dwell in such places or cities where house drainage is a necessity. But as time passes we become more convinced that drainage need not be a mysterious or theoretical science, the knowledge of which is in the hands of a few artisans or builders, but that it may be conducted on common-sense or even commercial principles to meet a practical want. When we see some of the specimens of faulty or corroded apparatus in the last stage of decay, which have been dug out or cut out from some of the defective systems, we can imagine that, to set our houses in order, something beyond mere sweeping and garnishing is necessary.

The improvements in this direction seem confined to our own country and America, whose press vies with ours in advocating reform, for we see no evidence of the adoption of new principles elsewhere, and those who have travelled much and stayed in foreign hotels and houses can bear testimony to the utter disregard of even cleanliness and the commonest forms of ventilation, even in the most elementary aspect. An exception to part of this statement may perhaps be noted in Germany, where a certain amount of official encouragement is given at any rate to the sanitary arrangements so far as the army is concerned. By means of such attention to details, the death-rate has been reduced to 5 in 1,000, against 10 in 1,000 in France, whose sanitary conveniences, or rather insanitary inconveniences, are anything but "sans peur et sans réproche." A most striking example of this will be familiar to those who know the system in use, or until quite recently in use, at the Rouen Railway Station, where, at least in this respect, they do *not* "manage these things better in France." In our own country, however, notwithstanding the terrible and painful experience brought to bear upon the subject, there are but few houses which are satisfactorily drained and ventilated throughout. People prefer to run the risk of zymotic diseases and their results, rather than face the expenditure necessary to remedy the evils of which they are so frequently reminded and which they so frequently forget.

It has been all along to the plumber's interest to keep his work carefully concealed, partly because it will not always bear inspection, and also because of the inevitable defects producing disagreeable results. He is again and again called in by the householder, with misplaced confidence but in great faith, to "see to the drains," with the usual result—viz., a more or less constant employment of himself and his men. In his defence it certainly must be said that although he often acts according to his lights, his work is mostly exerted in the wrong direction, and the most terrible errors are perpetrated and perpetuated from time to time in gross ignorance of the ordinary principles of sanitation. Starting with the serious error of burying the soil-pipe in the wall—or, at least, inside the house, the evil culminates in allowing this pipe to become a direct conveyance of sewer-gas from the general drainage to various parts of the house from top to bottom, and from outlets where least expected, such as in bath-rooms, lavatories, and cisterns.

As an example of a very common sanitary error we may take the following:—In the first place, the w.c. apparatus usually fixed, even in large houses, by speculative builders, is the pan-closet, as it is called, with the inevitable D-trap.



A "D-Trap," taken from a house near London.

This is totally inefficient, and should be removed at once, for, notwithstanding every care and precaution in its use, it must constitute a constant source of very great danger. Some makers have introduced improved forms of this apparatus, but this is, however, rather an unfortunate circumstance, as the name may imply safety, and cause the continuance of its use, while it is not in the power of any improvement to render it a safe and proper form of construction. The diagram shows the ordinary and condemned D-trap, into which, to make matters worse, the pipes from the other house-services have been brought, and the noxious vapours thereby disseminated throughout the house in a way that could not be exceeded even with careful design. Here, as the illustration shows, the trap was simply a centre from which foul gases could readily spread to the water-supply and rooms of the house. This specimen was taken from a house near London, and is an example of a vast number of similar cases, to which sources many cases of disease (*e.g.*, typhoid-fever, diphtheria, &c.) may be traced.

Around the ordinarily harmless path of the diluted-beer drinker dangers are gathering, as appears from the report of Dr. Cyrus Edson to the New York City Health Department, of the discovery of verdigris on the inside of brass beer-keg faucets—"enough to kill a dozen men."

In order to prevent the spread of contagious diseases through the public schools, the Committee on Law will report to the Philadelphia Council an ordinance punishing with a fine of 150 dols. any parent, or person in charge, who sends a child to a school from any house where a contagious disease has existed, before at least ten days have elapsed since the disinfection of the house.

Jottings from the Journals

"Th' ingredients of health and long life are
Great temperance, open air,
Easy labour, little care."—*Sir Philip Sidney.*

Cholera and Cowardice.—It is a most deplorable proof of the weakness of human nature that it is at all times prone to fall into a state of panic when brought face to face with the inevitable. We must all die, and we are not ignorant of this our destiny, nevertheless, the instant a danger to life is recognised, we fly from the peril with the impetuous haste of crazy and cowardly creatures, forgetful alike of duty and decency. It is vain to argue in favour of self-possession. Philosophy has no charm for, or power over, the man who impulsively turns his back to the enemy. Nothing we could urge would have the slightest weight with the multitude bent on escaping from the ports and cities which are just now supposed to be rife with the infection of cholera. These flying crowds, on safety all intent, must be left to their own devices. It is manifest that they will spread the malady, and it is scarcely less certain that they will, many at least, lose their lives in trying to save them. With regard to these matters, however, it is useless to speak. Suffice it to point out that, although in the presence of an epidemic of cholera there is always and unquestionably some personal peril of contracting the disease, it is by no means certain that this is increased by remaining in association with the sick, or that the danger is to be avoided by running away! During severe epidemics it has been noticeable that the mortality has not been, by any means, greatest in the very centre, so to say of the disease in the hospitals and among the cholera patients scattered throughout the population, medical officers and nurses have gone about doing their duty with no greater mortality than that of those who have kept aloof. Indeed, it is probable that a certain amount of immunity from disease has been enjoyed by those who have not feared the danger of infection. The great secret of success in warding off disease is the preservation of health. We mean that if, heedless of danger, men and women do their duty to those around them—keeping up a cheerful temper and a trusty spirit, neither abusing the good things of life nor avoiding them; in short, living as all should live, whether in the midst of a healthy population or in the presence of an epidemic—they have a far better chance of escaping disease than by falling into a state of panic and "hastening to leave." The true policy is to kill the germs of disease on the spot, whether they be in the water or in the air. Every particle of the *dejecta* should be destroyed—not simply deodorised, but destroyed by a powerful agent capable of burning up organic material. This should be done at once and instantly on the spot, not merely with the choleraic, but with every patient who may have diarrhœa, whether specific or simple. If this be done, and the general sanitary conditions, and the average health of the community be looked to, there is no peril that need scare any one out of his or her sober senses in an epidemic of cholera either on the Continent or at home.

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Sunstroke.—The past few weeks have not been unattended with the perils to health which accompany continuous warm weather. Sunstroke, comparatively rare in our temperate climate, has already been reported. It is somewhat surprising that, in the circumstances under which so many of us, particularly children, live and go about, we do not hear of it oftener. Among the poor, bareheaded children are at least as common as those with hats. They are "only about the doors," and care is disregarded. In a wealthier grade it is not unusual to find infants wheeled about in perambulators guiltless of a hood, even in a bright and hot noon-day. Persons more advanced in age are apt to be careless in their own way. Notwithstanding the sanitary value and the comfort of broad summer hats, athletes at times, and for long at a time, interpose no more than the skull between a delicate brain-tissue and a temperature of 100°, or more, in the sun. Young ladies now more than ever raise over the crown the hair which naturally rests upon the nape of the neck and there protects the seat of the vital nerve-centres. Fortunately these have another means of protection from solar heat in the parasol. Sunstroke is best treated by prevention, and enough, perhaps, has been said to direct public attention to the need in such a season as this of adapting means to this end.—*Lancet.*

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Unwholesome Fruit.—Special precautions are necessary, during the present period of extreme heat, to prevent the consumption by the poor, and especially by children, of unripe or decayed fruit. The markets need to be carefully watched, and the stocks purchased and sold by itinerant vendors of perishable commodities should be rigorously inspected, to prevent hardship to these poor but often reckless people. The stocks of the wholesale dealers should be subjected to daily and rigid inspection, and the market supplies dealt with by vigilant and severe measures. These precautions are necessary on account of the extreme heat of the weather, as well as of the proximity of choleraic disease. It is peculiarly discreditable to the authorities of Covent Garden that, at this juncture, this market should be so ill cared for as it appears to be.—*British Medical Journal.*

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Numbness of the Hands.—Dr. Downes writes as follows to a medical contemporary regarding this common affection:—"A week or so past a correspondent asked for information on this subject. Perhaps I can supply him with the information he asks for. I have had several patients suffering from this complaint. When in London, I attended the out-patient department of the Hospital for Nervous Diseases in Queen-square, and saw one or two such cases in Dr. Buzzard's practice; and Dr. Ormerod gave me a pamphlet which he has written on the subject. I think that there is a good deal of evidence to show that it is a symptom of gout; probably there is some gouty infiltration in the sheath of the nerves, or possibly in the sheaths of only such nerves as are predisposed by being subjected to pressure, such as the ulnar, when a person lies on his side for some time. In any case, an alkaline treatment, with perhaps iodide of potassium, is the best to adopt. After the symptom has existed for some time, only on waking, there is undoubtedly a tendency for it to remain present more or less permanently; in such cases, blistering is needed, and will do much good. But I am sure that one great point is to prevent pressure on the ulnar nerve. This may be done in many ways, but none is better than a very simple expedient, namely, to rest the arm, just above the elbow, on a rather soft book like a 'Bradshaw,' but not the thickness of the full edition of that book. This takes all weight off the elbow, and causes no discomfort. Feather beds and spring mattresses are both to be avoided; a good hair mattress is the best."

International Health Exhibition. — Eastern Gallery. — No Gas in Daytime.—See Chappuis' Reflectors, 69, Fleet-street.—[Advt.]

Recreation and Health

"Health is the vital principle of bliss,
And Exercise of health."—*Thomson.*

HEALTH AND HOLIDAYS.

FOREIGN HEALTH-RESORTS.—IV.

By a Physician.

Bormio.—A small town, or village, in Italy, long known for its thermal springs. It is situated on the southern side of the Alps, at the foot of the Stelvio pass, some 4,300 feet above the level of the sea, and though not strictly beautiful itself, it is within easy excursion distance of some remarkably lovely scenery. Santa Catarina, for instance, with its protecting semi-circle of snow-clad peaks, and extremely picturesque surroundings, is but seven miles away, and in the immediate neighbourhood, also, are St. Moritz and the Engadine. The climate at Bormio, considering its altitude, is mild and equable—far less bracing than that of the localities just mentioned, a result that is due to its southern aspect and lower elevation. The baths are principally useful in cases of rheumatism and paralysis; they are also beneficial in certain forms of hysteria. The accommodation for visitors is not extensive; there are two inns in the place, named respectively La Posta and Cola, and quarters may also be secured at the baths two miles up the valley.

Boulogne.—A highly-popular watering-place on the northern coast of France, possessing rather the characteristics of a holiday-resort, pure and simple, than celebrated for its health-giving attributes; but as holiday-making in many cases means also health-making, we include it in our list, as we shall include several other resorts of a similar nature. For many years Boulogne has been an especial favourite with English people, no doubt in a great measure owing to its easy accessibility from home; and now, planted in its midst, it is almost difficult to believe that one is in a foreign country, so largely do the English language and the English personality prevail. The town is divided into two parts, an old and a new, the latter being on a lower level and nearest the port; while the former is built on the right bank of the river Liane, at a considerable height. They are connected by a steep street, the Grande Rue, of very handsome proportions. The attractions of Boulogne are many and varied; to some people, no doubt, the life and animation of the place, with its infinite zest and light-hearted gaiety, such as we believe is to be found in no English town, will in itself prove a pleasure, and even walking about the streets observing the volubly-animated people that one meets, with the picturesque costume of the women, whose faces look so bright and cheery beneath their huge Normandy caps, will prove a delight; but, making a summary of the entire lot, we should say that the chief attractions of Boulogne are the sea-bathing and the series of amusements organised at the Casino, under the fostering care of the Municipality. Both are in their way admirable. The beach is a firm sandy one—no better the lover of natatory pursuits could desire; and the amusements, to use an old expression culled from the play-bill, must be seen to be appreciated. Besides this, however, there are some extremely interesting places to be visited in the neighbourhood, Étaples, Montreuil, &c.; there is also an excellent theatre, fireworks provided at night, and, at certain periods of the year, regattas and horse-races during the day, and what not beside; in short, for the invalid who requires cheering up, whose malady is not one of actual disease so much as low spirits and depression, arising from a certain morbidity of disposition, we can confidently recommend a visit to Boulogne as the most powerful medicine he could take. Hotels: Grand Hôtel Christol, Hôtel des Bains, Brighton and Marine Hotel, Hôtel Dervaux, Hôtel de l'Europe, Hôtel des Londres, &c. Fares from London, *vid* Folkestone: First class, £1. 10s. 9d.; second class, £1. 2s. 6d., the journey occupying four hours.

Bourbonne-les-Bains.—A small thermal resort in the north-eastern department of France (Haute Marne). The waters are chiefly efficacious in cases of diseases that have been accelerated, or brought about, by a constitutional scrofulous taint in the patient. They are, therefore, especially applicable in many forms of joint disease, more particularly that affecting the hip; they are also of much benefit in certain varieties of dyspepsia. Persons suffering from acute complaints, however, or affections of the heart and chest, should carefully avoid these waters. Life at Bourbonne, as at most resorts where inducements are held out only to such as are actual invalids, is not of a particularly enlivening nature; but there is a casino at the head establishment, and there entertainments of a varied kind are given, on an average, twice a week. The neighbouring country, also, is not without its attractions. Fares from London, *vid* Calais, Paris, and Vitrey, 1st class, £4. 15s.; 2nd class, £3. 11s. 6d.

Bourboule (La).—A thermal station in Auvergne, chiefly remarkable for the large proportion of arsenic that its waters contain. In each litre of the Bourboule waters there are no less than twenty-eight milligrammes of arseniate of soda, in combination with two other agents that render its effects the more beneficial, namely, bicarbonate of soda and chloride of sodium. The complaints successfully treated here are chronic rheumatism, with enlargement of the joints, diabetes, many forms of skin-disease, and throat and chest affections. As at Bourbonne-les-Bains, cases resulting from a scrofulous constitution also derive much benefit. The season at Bourboule extends from June to September. There is an excellent casino and theatre. Considering that the village is situated 2,790 feet above sea level, the climate is comparatively mild, owing to its protected position from the north winds. Hotels: Grand Hôtel Ferreyroles, Hôtel Bellon, Grand Hôtel de l'Univers, Hôtel de Paris, Continental, &c. The route to Bourboule is a somewhat complicated one, the traveller proceeding, in the first place, to Paris, thence to St. Germain-des-Fossès, and on to Clermont-Ferrand and Laqueuille, from the latter place taking the diligence to his destination. Total cost, from London, about £5. 12s. (first class); £4. 2s. 6d. (second).

The Largest Sewer in London.—Recently several members of the Metropolitan Board of Works inspected at Deptford the largest storm overflow sewer that has as yet been constructed in the metropolis. It is 11 ft. in height and 13½ ft. in breadth. The total cost has been £34,000, the ground covered is 3,350 ft., and the time occupied on the work has been about one year and a half.

Medical and Sanitary Exhibition, 1881.—Reward of Merit.—International Health Exhibition, 1884.—Stand 69.—Diabetes. Van Abbott's Gluten Bread, and all other suitable Foods for Diabetics, Dietary Table, Menu, Cooking Receipts, and Price List, post-free on application. Delicate Children. Van Abbott's Hypophosphite of Lime Biscuits, for Children suffering from Debility, Deficiency of Bone, or Ricketts. See the *Lancet* and Health. Constipation. Van Abbott's Bran Biscuits. Dyspepsia. Van Abbott's Malt Biscuits. Van Abbott's Vegetable Bread and Milk, Saccholac for Infants, Imperial Granum, Rolled Avena, and all American Cereals for Infants and Invalids. Hathorn Table-Water direct from the Springs in Saratoga, U.S.A. G. Van Abbott, 5, Princes-street, Cavendish-sq., London, W.—[Advt.]

Our Bookshelf

"Reading maketh a full man."—*Bacon.*

THE CARE OF THE SENSES.

The Health of the Senses. By H. MACNAUGHTON JONES, M.D., F.R.C.S.I. and E., &c. (London: Longmans, Green, & Co. 1884.)

THIS is an excellent manual, written with the view of instructing the public in the plain details of health as applied to the care of those portions of the nervous system which George Wilson long ago happily styled "the gateways of knowledge." Eyes, ears, and the other organs of the senses, are, in truth, mere "gateways." They are the parts of the nervous apparatus which receive, modify, and transmit things seen, heard, smelt, &c., to the great centres in the brain which are concerned with the appreciation and consciousness of the affairs of the outer world. We see and hear, not with eye and ear, respectively, but with the brain. Eye and ear and other sense-organs, are merely structures which are suited and adapted for conveying to the brain and understanding, the impressions which the outer world makes on our frames. This much is found, of course, in an elementary study of the nervous system, but that study naturally enforces on our attention the clear duty of taking especial care of the nervous "gateways" that bring us into relation with the world in which we live. Hence the title of Dr. Jones's work is a happy one. Healthy senses form, in fact, the foundation of a rational life, as disordered senses may be said to render us incapable of living our lives to the full. It is the merit of this work that it conveys much sound information in a clear and forcible style; and teaches many facts regarding the ways and means we possess of acquiring our knowledge, which every educated person should know.

Here and there in the course of his book Dr. Jones, we think, might have extended his observations with advantage to the general reader. In his "Appendix" of the foreign and home health-resorts, for example, his list of Scottish resorts is limited to Ardrossan (mis-spelt Androssan), Nairn, Oban, and Rothsay (*sic*); no mention being made of North Berwick, or of many other watering-places of the North. The Scottish inland mountain and other resorts (Crieff, Pitlochry, Dunkeld, &c.) are altogether omitted, and the list of English resorts does not include any of the famous bracing places on the Essex coast. Again, the concluding chapter on "Education" is far too limited in extent to prove of practical value. We may be wrong, but we fancy Dr. Jones alludes at page 122 to an article in the *Modern Review*, which he calls the *Contemporary*, this periodical being again spoken of on page 127 as the *Fortnightly*. Such slips are evidences that Dr. Jones has been somewhat hurried in his work of revision; but when we have specified these objections we have closed our task of fault-finding. In the work before us there is much to praise, and Dr. Jones has succeeded in adding a really serviceable manual to the list of health-books in the market. The work, besides, is well illustrated—we reproduce some of the cuts—but the want of an index is a drawback to the utility of the book.

An introductory chapter deals with the subject of "preventive medicine," or health-science. The author's remarks (pages 9 and 10) regarding the need for pulpit-teaching of health-science, and of the inculcation of the high morality of sanitary advance upon congregations, are eminently in accord with the true spirit alike of religion and science. The succeeding chapters of the work are occupied with details regarding the sight, hearing, voice, habits affecting smell, taste, and skin, and the uses of diet, alcohol, and tobacco.

The chapter on the Sight is well worthy the perusal of every intelligent person. Beginning with an interesting description of the organ of sight (Fig. 1), Dr. Jones shows us its various parts—the cornea (*c*), sclerotic coat or white of the eye (*sc*), pupils (*p*), lids (*l l*), iris (*i*), and canal (*can*), for the drainage of tears into the nostril. The internal structure of the eye is also figured (Fig. 2). Here we see the sclerotic coat (*scl.*) forming the tough membrane which gives form and shape to the globe. The cornea (*cor.*) is seen in front; the pupil or opening in the *iris* (which latter is a curtain capable of opening or closing so as to accommodate itself to the light) is also seen; and behind the iris lies the *crystalline lens* (*l*), by changes in the shape of which the eye can be accommodated to distance. The great bulk of the eye-ball is filled with the *vitreous* humour (*v. h.*), while certain other membranes, the choroid coat (*cho*) and hyaloid membrane (*hy. m.*) are also figured. Last of all is seen the all-important structure named the *retina* (*ret.*). This is the nervous network of the eye—the expansion of the optic nerve (*op. n.*) or that of sight—which resembles the sensitive plate of the photographer's camera, in that it receives the images of things seen. The movements of the eye are provided for by muscles (*a*, *t*, *i*) seen in Fig. 3, the optic nerve being shown at *n*. By aid of these muscles, the eyeball is moved in well-nigh every direction, deformities of certain

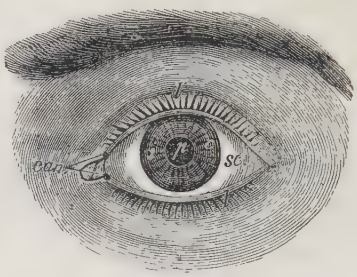

Fig. 1.—Outer parts of the Eye.

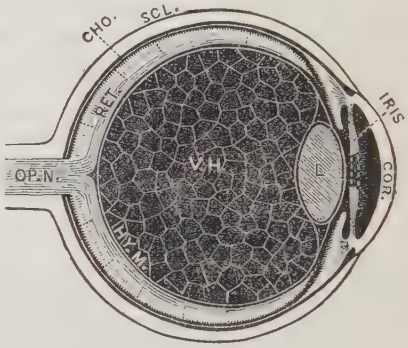

Fig. 2.—A section of the Eye-ball.

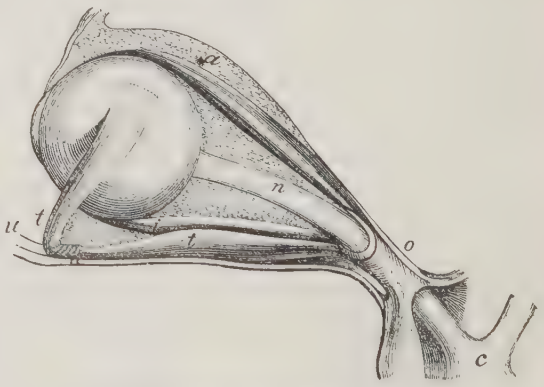

Fig. 3.—Globe of the Eye and its Muscles.

PURE WATER is such a vital necessity that, without it, illness is certain. None are more prone to the ill effects when impure than the young. To ensure a pure supply send a post-card to the LONDON AND GENERAL WATER PURIFYING COMPANY, LIMITED, 157, Strand London, W C., who will return particulars post free.—[ADVT.]

of these muscles causing squint and other ailments. Connected with the eye we find certain glands. Thus the tear-gland or lachrymal gland, which secretes the tears for washing the eye is shown in Fig. 4 (*lach. g*), while those of the eyelids are also depicted (*meib. g*). The openings (*punc. lach.*) of the canals conveying the tear-secretion to the nose are likewise shown in the figure. It is inflammation of the eyelid glands which proves so annoying, in children especially.

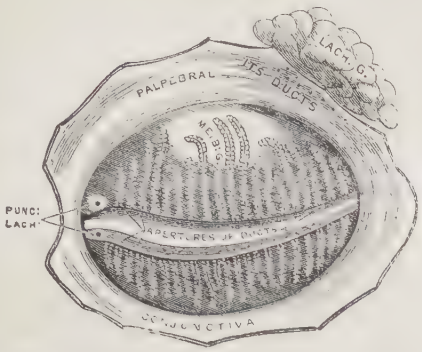

Fig. 4.—Glands and Ducts of the Eyelids.

Dr. Jones deals very effectively in his work with eye-complaints in the young. He shows that many serious eye-troubles may be avoided by timely care and attention; and this section of the book should therefore appeal to every mother. He gives illustrations of a number of "test-types" for the sight, and explains the causes of the various eye-affections most commonly met with. Dipping the eyes in cold water is condemned by our author. The eye-douche is preferable in his opinion, because it plays in a fine spray on the eye. In wearing eye-shades, the important advice is given that *both* eyes should always be shaded, so as to avoid any tendency to strain on the part of the unprotected eye. The electric light, Dr. Jones thinks, is safer than gas as regards the eyesight, and for office work, the use of green shades is recommended.

In the chapter on the ear and its health, Dr. Jones exhibits the same careful treatment of his subject. That discharges from the ears should always be attended to, our author makes a golden rule of treatment; and he is wise in so doing. Boxing and pulling the ears are practices he roundly condemns. The habit of dropping oil into the ears is also condemned, because it gives rise to conditions which favour the development of a species of Aspergillus (Fig. 5), or ear-fungus, the presence of which tends to develop mischief in the ear passage. Noises in the ears, as Dr. Jones points out, are frequently caused by wax, and even a small particle resting on the drum-head may give rise to this distressing affection. He adds, what is a common experience, that a change of air in a holiday trip will often cure such ailments when these proceed from nervous worry. "Throat deafness" is also treated in these pages, and hints for treatment given. The practice of wearing cotton-wool in the ears is condemned. Where there is ear-discharge the wool only increases the mischief; whereas soft-rubber ear-protectors are preferable.

Fig. 5.—Aspergillus, or Ear-Fingers, (largely magnified). At A and B the spore-heads of the fingers are seen.

Artificial aids to hearing are noted by Dr. Jones, and this part of his work will be studied with interest by all who suffer from deafness. The audiphone (Fig. 6) is now used, as well as the dentaphone and other aids. Dr. Jones says:—"A deaf person may fairly try the effects of the audiphone by taking an ordinary Japanese hand-screen, such as generally rests on the mantelpiece. The edge is placed against the tooth; by experiment the best tooth to apply it to can be ascertained. The fan or screen is then given a curved shape by drawing its handle towards the chest. If there be artificial teeth, the edge or ivory clip

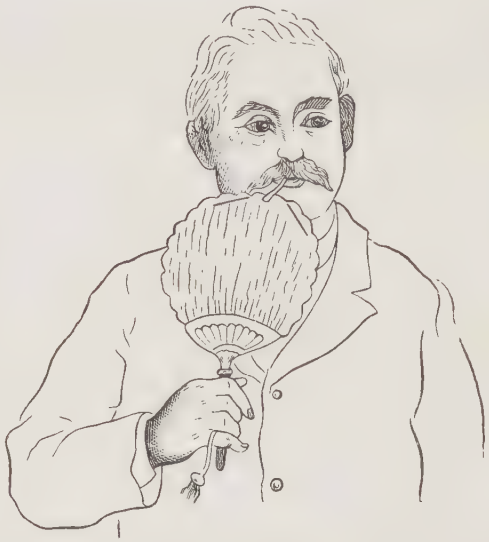
Fig. 6.—The Audiphone in use.

of the audiphone must touch a natural tooth. Some one must then, by experiment, try the effect on the deaf person—speaking in different tones, striking notes on the piano, or singing. Then a portion of a book is to be read aloud, and the same extract read from day to day, so as to test the improvement in hearing."

The care of the voice is carefully treated of in the fourth chapter of Dr. Jones's work; and many hints of value to singers may be gleaned from this portion of the book. In the section dealing with the smell, taste, and skin, the various topics are lucidly explained. For colds in the head Dr. Jones recommends the use of "Ferrer's Snuff" early in the affection. This snuff consists of muriate of morphia, two grains; powdered gum acacia, two drachms; and subnitrate of bismuth, six drachms.

Altogether, the "Health of the Senses" is a book we could desire to see represented in every household library. There are few persons, sound or the reverse in health, who may not glean serviceable hints from its pages.

Capsicum in three-grain doses is recommended by Vidal for piles. Capsicum in a bolus of twenty grains is a favourite army remedy for acute alcoholism.

Since the installation of the metropolitan drainage for London in 1859, the level of the water in the soil has been lowered thirty feet. It is seldom, at the present time, an engineering difficulty to get rid of the water in making excavations; and the basements of houses, and even the foundations, in the lowest parts of London are now generally surrounded by a comparatively dry soil—a condition of things the very reverse of what was previously the case, and wholly in favour of the public health.

Coca Leaves.—The new stimulant gives renewed life and vigour to the *Weary* and *Overworked*. Dr. Blunt, of Northampton, says:—"The recuperative powers of this restorative are truly astounding." Sample packets, together with medical and scientific opinions, 13 stamps, post free, from J. T. Marks & Co., 17, Newcastle-street, Farringdon-street, E.C.

CONDENSED MILK.

SEVERAL successful prosecutions have been conducted against the retailers of condensed milk in Liverpool, which the *Analyst* thinks will doubtless cause considerable consternation among the large milk condensing companies, who have up to the present time escaped the operations of the Sale of Food and Drugs Act.

Condensed milk has been lately extensively employed in connection with what may be called a new industry, that of "milk-blending," or, in other words, letting down rich dairy milk, so that the analytical results agree with the figures for solids not fat prescribed by the Society of Public Analysts. Large quantities are daily consumed in this way by milkmen, and to such an extent has the trade increased that condensed milk is imported in churns, especially manufactured for the convenience of dairymen; these churns being returned to the factory for a further supply.

The difficulties of condensing rich milk, although much scientific attention has been devoted to it of late years, are well known to those engaged in the trade, more especially when the milk is preserved without the addition of sugar, but there is now no difficulty whatever in preparing condensed milk of fair average quality containing the whole of the cream present in the milk previous to condensation. the excuse that a large proportion of the fat was mechanically carried over in the operation of condensing *in vacuo* has been repeatedly proved to be erroneous. In fact, it is not unusual to add to the milk, during the first stage of concentration, clear butter fat, in order to prevent the excessive frothing which take place and causes considerable trouble, requiring great care to prevent the milk from rising over and mixing with the condensing water.

Manufacturers of condensed milk have, therefore, no more right to deprive the milk of its cream previous to condensation than the ordinary milkman; in fact, the offence becomes in their case more serious, as, instead of declaring the article as condensed skim milk, it is described as milk, guaranteed to be pure cows' milk, and is highly recommended for invalids' and infants' diet, as being more wholesome and nutritious than fresh cows' milk, and especially milk from cows fed in cowsheds in large towns; the milk is the richest and best, the water having been abstracted and pure loaf sugar added. The heinousness of selling condensed skim milk under cover of this guarantee is obvious, more especially as the offence is not committed by a small milkman in one of the poorer districts of our large towns, but by large companies, presumably with extensive capital, and controlled by educated men, who, simply for the sake of underselling, put forward an article deprived of one of its most valuable constituents, and represent it to be richer in quality than genuine milk from cows fed in cowsheds in large towns.

Sanitary Appliances, Etc.

THE DISINFECTING AND OTHER PREPARATIONS OF MESSRS. CONDY & CO.

THE name of "Condy," in connection with disinfection is, of course, "familiar in our mouths as household words;" while the excellence of the manufactures of this firm is so well known that no further commendation of their preparations is required. The present juncture, however, when the propriety of using disinfectants to obviate the risks arising from drain effluvia and sewage gases, and to ensure the purity of our water-supply, is a prominent topic, seems to call for a notice of the "Condy" articles which, in their various forms, may well be styled "aids to health" of the most approved description. The well-known Condy's Fluid acts by disengaging nature's own disinfectant Oxygen, and by liberating this gas as a destroying agent of all putrefying matter. Being devoid of odour, "Condy" acts silently and effectively; while the fact that it is non-poisonous is, of course, a high recommendation for domestic use. When a volatile disinfectant is required to purify the air, a small quantity of spirits of salt or muriatic acid is added to Condy's Fluid, the result of the combination being to cause chlorine gas to be given off slowly and in a state of high purity. For the reception of the bed-clothes of a fever patient, a tub containing Condy's Fluid diluted with water should be provided. When so diluted, this valuable fluid does not stain the articles of clothing.

As a test for the purity of water, Condy's Fluid should be used in all cases in which any doubt regarding the purity of a water-supply exists. For testing water by this method, we add to a tumblerful one or two drops of Condy's (Crimson) Fluid, which will give it a very faint pink hue. If, after standing half-an-hour, the pink colour has gone or turned to yellowish, the water is tainted and cannot be used safely in the state in which it is. If, on the contrary, the pink hue maintains itself, the water may be used with safety. But in every case filtration is a very desirable precaution. That operation will be rendered still more efficacious against organic pollution by adding to the water to be filtered enough of Condy's Fluid to give it a pink colour; and when no filter is within reach, this latter precaution alone may advantageously take its place.

Condy's Fluid has also been administered as an internal remedy with high success (in the form of a preparation called "Condy's Remedial Fluid") in cases of diphtheria, sore throat, &c., while as an outward application to wounds, ulcers, and burns, &c., this fluid is invaluable. We have witnessed its healing effects recently in a case of indolent ulcer. The "Antiseptic Aromatic Vinegar" made by this firm should also be mentioned as an excellent preparation to be used in all cases where a necessity for purifying the air exists, while as a toilet vinegar, suitably diluted, this fluid is of high service in relieving headaches and nausea, and in preventing infection. An "Aromatic Powder" for placing in closets, &c., and in rooms, is also well adapted for disinfecting purposes, while the "Health Powder" is also suitable for use in all cases in which a solid disinfectant is desirable.

For purposes of personal hygiene, Messrs. Condy manufacture several preparations, which we have pleasure in bringing under the notice of our readers. The "Patent Ozonized Water" forms a perfect mouth-wash, and imparts a peculiarly grateful effect to water used for washing the face. The "Ozonized Sea Salt," added in two or four tablespoonful doses to the morning bath, imparts a bracing and stimulating character to that aid to health. The employment of this salt certainly assists and increases the refreshing effect of the "morning dip." As a household article, the "Pure Malt Vinegar" of Messrs. Condy deserves special mention. The impurities of common vinegar are well known; and it is satisfactory to find that, diluted with five times its bulk of water, this vinegar is found to present us with a solution thoroughly pure and well adapted for all household purposes.

An excellent and handy form of apparatus for aërial disinfection is also manufactured by Messrs. Condy, whose preparations have thus stood, for many years, the tests which science has from time to time brought to bear upon them.

MOPPETT'S "APPUI" CHAIR-BACKS.

MESSRS. MOPPETT & Co., of Rock-street, Kemp Town, Brighton, send us specimens of their "Appui" chair-backs. These are highly-ingenious little inventions, fixed at once and without any preparation to the backs of chairs, and removable at will. The feeling commonly experienced of back-ache and weariness, after sitting in an ordinary chair, is due to spinal strain, and deformities of the spine are frequently produced in the young through the injudicious use of unsuitable furniture, in schools especially. The "Appui" chair-backs give a delightful sense of rest, support, and comfort. The variety which has an adjustable screw, so fitted as to adapt the back or support to any angle or position, appears to us to be eminently suitable not only for invalids, but for those whose occupations are of a sedentary nature. The plainer variety of "back" is also well suited for ordinary use. These "backs" can

SCOTT'S MIDLOTHIAN OAT-FLOUR.—There is no preparation which can be assimilated with greater facility than such a flour as this. Those who suffer from indigestion might substitute for their ordinary breakfast materials this flour, prepared according to the recipe given by Messrs. Scott and printed on the tins.—ED HEALTH.—[ADVT.]

be made in any pattern, so as to match any suite of furniture. We are able emphatically to re-echo the medical testimony already given in favour of Messrs. Moppett's inventions, which deserve to be widely known and patronised as a simple and legitimate aid to health.

Our Letter : Box

"Conference [maketh] a ready man."—*Bacon.*

LETTERS TO THE EDITOR.

CREMATION.

Sir,—In the last issue of Health your correspondent, "G. B. S. W.," replies to my comments on his former letter. I am glad to find he approves of "cremation" in theory; he seems, however, to be possessed by some sentimental objections to that process, and is fond of using the term "barbarous" in connection with this method of disposing of the dead. I do not think it is necessary to discuss the question of "barbarity" in reference to cremation. Your correspondent evidently thinks the process of cremating a body is "barbarous," because it is associated with the idea of destruction by fire. With this view I have no sympathy, nor do I think any sensible mind will agree with the somewhat feeble arguments advanced by "G. B. S. W." To stuff a coffin full of quicklime is surely a proceeding infinitely more distasteful to the sentiment to which your correspondent appeals than to submit it to the hot air of the cremation furnace, which, in silence, swiftly and effectively accomplishes its work. It is clear your correspondent has never seen a cremation-furnace, otherwise he would never talk of the "roaring fire" of the generator. Fire there is, but we see it not in cremation. The body is placed in a receptacle, heated by the gases and vapours derived from the furnace. The mourners see and hear nothing. And in an hour all is over. The axiom, "Dust to dust" receives its practical—and as far as the living are concerned—its only safe illustration.

"G. B. S. W." speaks of quickliming bodies as the preferable mode of "burial." Does he not reflect that ground would be occupied then, as now, for cemeteries; and has he yet to learn that disease germs may escape such action and remain in the earth to sow the seeds of future epidemics? Lastly, his evidence regarding the destructive powers of lime is not complete. He merely quoted an extract from an American paper, by way of proving that lime caused the bodies of criminals to quickly disappear. I maintain that such evidence is insufficient to enable us to accept his dictum that lime is so destructive as he seems to think. We don't want cemeteries at all. Cremation is the only method which secures immunity from disease, and saves the deplorable waste of ground at present going on.—I am, sir, yours &c., Cremationist.

QUERIES AND ANSWERS.

We would direct the attention of our correspondents to the fact that, owing to the necessity for sending Health to press early in the week, answers to queries cannot, as a rule, appear in the succeeding number of the journal. Every effort is made to secure punctuality in the replies, but we must ask the occasional indulgence of our readers, owing to the large amount of correspondence, which requires assortment and reply.

We must also request correspondents who write enclosing stamps for copies of Health, to address their inquiries to the Publisher, *and not to the Editor.*

We beg to announce to our correspondents that, save in exceptional cases, or where addresses of medical men, &c., are desired, we cannot reply to inquiries by letter.]

GENERAL.

Ixion.—See advertisement in Nos. 66 and 67 of Health.

B. Oswald.—We know the invention, and approve of it.

G. C. O.—Any wholesale druggist would be likely to give you the information you seek.

Andrew Inglis.—There is a difficulty in such a practice which the legal mind has discovered. Possibly the new Medical Bill (if it passes) will put things right.

Callant.—(1) Yes; the steamers are well appointed and very comfortable. (2) Bracing, decidedly.

Auto.—The functions of the pons and optic lobes of the brain are still doubtful. They probably control emotional acts.

Coxeter.—The "Calda" heater might suit your purpose. See our advertising columns. Otherwise you must have the hot water laid on in the laboratory.

J. A. T. C.—You will find a good account of "Spectral Illusions" in Sir David Brewster's "Letters on Natural Magic" (Chatto & Windus); see also Dr. Andrew Wilson's "Leaves from a Naturalist's Note-book" (Chatto & Windus) for an account of the "Ghosts of Science." Hibbert's "Apparitions," is, of course, a classic work.

E. Burns.—Spontaneous combustion is a "realised fact," to quote your own words. See works on Medical Jurisprudence (*e.g.*, Tidy or Taylor).

Grace G.—1. Not at present. 2. The papers will appear shortly. 3. Thanks.

Albert R.—You have yourself to blame. It is a safe rule that doctors who advertise are to be regarded with suspicion, and this rule applies to qualified and unqualified men alike. The doctor who advertises himself is as often as not a bit of a quack, because he pretends to exhibit a special skill no one else possesses. As for the quacks who announce their "marvellous cures" in the lay journals, the slightest exercise of common-sense will show you the nature of their pretensions. Is it the quack, who has not undergone a medical training, or the physician (or surgeon) who has spent five or six years in the acquirement of his professional knowledge, who is likely to know best how to treat disease?

Jim.—See reply to "Albert R." above. Unless you are specially blind and non-sensitive to prurient details, one glance at the pamphlet you enclose should have warned you of the character of the man who issues it. Refuse all further demand. He is a thorough scoundrel, and possesses the courage of scoundrels—which is *nil.*

O. C.—There is no person of that name on the staff of Health.

Tricycling Replies.—Jennie.—The machine you name would suit you well. A lady who has tried it writes that she is well pleased with it in every way.—A. T. No connection between tricycling and such symptoms.—Peter B. You should not fast too long; and after meals you should rest for an hour at least; after dinner for, say, two hours.—J. B. T. You mean a "varicose vein;" consult a surgeon before tricycling, because, in your case, there are certain peculiarities requiring medical examination.—Ægus. There is no question of the excellence of the machines made by the Coventry Machinist's Co. The "Rucker" is also very good. The "Sterling" is highly spoken of by Mr. Browning, among others.—Tendon. Give up tricycling till the swelling disappears. Use a cold water bandage.

A. Speirs.—The "other side" of the question has not been stated, it is true; but there seems every probability of the practice being adopted.

Crematorium.—Several correspondents write us, requesting to know if a crematorium has been erected in England. In reply, we beg to say that at St. John's, Woking, near London, the Cremation Society of England has erected a crematorium. All information can be had by applying to the Secretary of the Society, 11, Argyll-street, Regent-street, London, W.

J. H. C.—Huxley's "Physiology" (Macmillan, 4s. 6d.) would certainly suit the advanced stage; for honours some more elaborate treatise (*e.g.*, Foster's "Physiology," Macmillan), would suit you. For the advanced stage, Power's "Physiology," published by Messrs. Cassell (6s.), might suit; and we should say this latter work might also be read for honours.

Cosmopolite.—We have never heard of such a society. We suspect it is either a bogus concern or a small society utterly unknown in the world of either letters or science.

K. Dornbutch.—The paragraph to which you make allusion was taken from the *Scientific American*, if we mistake not. The name of the speculator was not mentioned. We regret greatly being unable to supply you with further information.

SANITARY.

J. B.—Take up the flooring. It is evident the drain is leaking. No drain should have been made in such a situation.

A. Collins.—Pixene fluid might suit your purpose. Try it.

Tabrar.—The case is one simply for a gasfitter's opinion. Stott's "Governor" would abate the nuisance.

George Hay.—See Dr. Fox's book, reviewed in Health No. 65.

C. E.—We believe in Birmingham there is no compulsory clause, but the medical attendant is paid 5s. for giving notice of infectious disease; in Edinburgh there is compulsion, and the fee is 2s. 6d.

Widow.—The matter is one strictly for the attention of the Medical Officer of Health. If he does not attend to your complaint (state your case clearly), appeal to the Corporation.

MEDICAL.

JET.—Pamphlet that of an American quack. Have nothing to do with him. As we imagined, the symptoms were due to the irregularity you now name. Treatment should be of mechanical kind, which only a physician can apply. In that lies your great hope of cure. Take fifteen drops *Fer Bravais* (to be had of any chemist) in water thrice daily. Glad to be of any further service.

JOHN BULL.—"Potass Water" and "Potash Water" mean the same thing.

J. J. C.—First see to your general health. Take cod-liver oil and iron (add three drachms syrup of the iodide of iron to six ounces of cod-liver oil); a tablespoonful thrice daily after food. Procure a spray-producer, and spray the nostrils well with some disinfecting solution (*e.g.*, Condy's Fluid and water, or a weak solution of carbolic acid—say, one to forty of water.) Washing out the nostrils by means of a nasal douche, with a solution made by dissolving a teaspoonful of alum in a pint of water, is also useful. Messrs. Khrone & Sesemann, 8, Duke-street, Manchester-square, London, W., will supply you with a nasal douche or spray apparatus.

GERTRUDE.—[Please observe that you posted your letter unstamped, and, secondly, that you addressed the "Publisher" (omitting the name of this journal), instead of Editor. A little care in reading "Notices to Correspondents" would save us much trouble.] Give a dessertspoonful of the following mixture thrice daily:—Iodide of potass, two drachms; infusion of calumba, six ounces. Mix and label as above. Diet to be generous: a change to a mild seaside resort would do good.

OBSERVER.—It is quite clear that the Cascara Cordial you were offered by the druggist was that named by Dr. Craig. The makers' names were only slightly mis-spelt. If you read Dr. Craig's article attentively, you will see he there gives the doses of the cordial—twenty to thirty minims (or drops) two or three times a day. Of the Fluid Extract of Cascara (a different preparation from the cordial) the dose is from ten to thirty drops. Both are American preparations, now sold by or can be ordered of all druggists here. For the cure of constipation, twenty drops thrice daily (and the dose gradually lessened) are found to induce habits of regular digestive action. Hence the value of the remedy.

A. W. L.—To cure your deafness you must be made aware of its exact cause. Your letter does not indicate this or give sufficient information to enable us to form an opinion. We imagine the drum of the ear must be thickened as the result of cold. Try the effect of gently syringing the ear in the morning after softening any wax which it may contain by putting two drops of glycerine in the ear at night with cotton wool. Consult, if not successful, a professed and competent surgeon.

CLASSICUS.—We still think you are foolish in not seeing a physician. The pill you name will do no harm as a tonic pill, taken an hour before meals. If this does not improve you, try the effect of 15 drops *Fer Bravais* in water, midway between meals, thrice daily. Glad to be of any further service. Maignen's "Filtre Rapide" should satisfy your requirements.

R. M.—Read "Science and Singing," by Dr. Lennox Browne, a shilling pamphlet, published by Messrs. J. & A. Churchill, London, on the voice, &c. There is also a useful little book on voice preservation by Dr. Holmes (price 2s. 6d., published by Chatto & Windus, Piccadilly, London), which you would find useful. You require perfect rest for a time. You have overstrained your voice. If you wish your throat thoroughly examined, we can send you, if desired, the address of a competent Edinburgh physician, who has made the voice a special study.

B. A.—Your two letters received. We feel pretty certain nervous worry, probably induced by the frequent changing of trains, &c., is the cause of your ailment. You can easily prove this by noting the effect of your holiday rest, when you have no travelling to do. Meanwhile, try fifteen grains bromide of potass taken in water each alternate night for a week or so. We think the East Coast bracing air (Yarmouth or district) preferable for your holiday.

WARTS.—See paragraph in HEALTH No. 67, page 231, regarding treatment of warts. If not successful, a simpler application is to touch the warts with aromatic vinegar daily till they disappear.

S. R.—[Your letter being addressed to the publisher, instead of the editor, of HEALTH, ran a risk of being delayed. It is the editor, not the publisher, who conducts a journal.] 1. For the throat try inhalation of iodine vapour, as recommended to "B. T." in HEALTH No. 67; or have the throat sprayed, by means of a spray-producer, with pine oil and eucalyptus oil (15 drops of each to half a-pint of water at 140° or 150° temperature). 2. See to your general health. The boils are an evidence of lowness of system. Try a little good claret with your dinner; and take the *Fer Bravais* as above ordered to "Classicus."

DAMOCLES.—You have been too energetic. Rest is your cure, and remember the golden rule of "moderation in all things." Such symptoms are not uncommon in persons in your condition. Rest, cold sponging, and the tonic ordered to "Dentos" in HEALTH No. 67, will make you quite well. Don't suppose any past ailment has anything to do with your present slight trouble.

TOKAR.—Don't be worried and nervous. So far as we see, you have improved since your last, and your holiday at North Berwick will do you a great deal of good. Bathe before breakfast, and take a smart walk thereafter; avoid chills, of course. We should advise you to rest longer after dinner; in twenty minutes your digestion is very active, and exercise or exertion is prejudicial then. Take Pepsine after your food, or Murdoch's Digestive Powder (357, Paisley-road, Glasgow) would suit you very well. Above all, be cheerful, and don't imagine the past has any lasting effects.

F. C. HALL.—Don't be over anxious about your hair. You may be constitutionally thin-haired. Use Rowland's Macassar Oil, which is a good hair stimulant. If not successful, write again.

BRIGHTON.—1. Your general health being well looked to, there is no reason why you should not recover from the ailment. Medicines may be required, however, but very simple applications in any case. 2. No; the ingredients of the prescription are all tonic, and there is nothing lowering amongst them. 3. The prescription is intended as a simple tonic, and not for any special use. In your case we should advise you to see a competent physician, to state your whole case to him, and be guided by him as to treatment, if necessary at all. In any case, such a consultation will relieve your mind. We can send you address of such a physician if you enclose stamped, addressed envelope.

A. N. X.—Take the tonic recommended to "Dentos," in HEALTH, No. 67.

B. G.—See and follow advice to "A. N. X." above. In addition, give up smoking, which is injuring you, by your account, and look well to your general health.

SARAH ANDREWS.—The medical man you name is a fully qualified and highly competent physician.

J. H.—Continue the tonic for a little; see that your food is light; avoid stimulants; don't take fluids late at night, and sleep on a hard mattress.

Y. D. E.—No; the teeth would not cause the ailment unless they disturbed the digestion. Wash with Pears' Soap and tepid water, and avoid chills, and meanwhile try applying benzoated zinc ointment to the part, and take ten drops *Fer Bravais* as a tonic, in water, thrice daily. If not cured, write again.

JOB FRANKS.—Why not try some of the beetle powders (Keating's and other makes), sold by all druggists? The "B. B. B." Insect Destroyer—sold, we believe, at 37, Walbrook, London, E.C., is also a good preparation. Try rubbing the floors of their haunts with paraffin oil.

A. W. M.—See advice given to "Barnum" in HEALTH, No. 64, regarding cure of dandriff or scurf.

ALPHA.—If you take our advice, you will refrain from morning study, and take your full share of rest. Try the effect of taking a little Morson's Pepsine with your food (as directed on the bottle), and let us hear how you are in a few weeks. Avoid constipation above all things.

JOHN KNOX.—(1) Certainly not; there is no impediment or reason against such a step, merely because you are "nervous." So long as you are free from disease, and so long as you regulate your life (all things in moderation) there could be no possible fear or harm. (2 and 3) Take for a time the tonic recommended to "Dentos," in No. 67 of HEALTH; and simply attend to your general health. You should outgrow such feelings by care.

K. S.—The ear-discharge should be quite stopped. So long as it continues there is always danger of further mischief. You are in good hands. Simply abide by the directions you received, if you wish to be completely well. If the headaches continue, pay a second visit to the physician. The expense should count as nothing if you are to regain your hearing and health.

SINCERE.—The leaflets you send us are quack productions. Do not meddle with such if you are wise. We think the *Fer Bravais* (to be had of any respectable druggist) would suit your case. Take fifteen drops thrice daily, and, if not better, write again.

H. T. W.—Try doses of Hunyadi Janos Water in the morning for a few days. This may relieve all your symptoms, which arise from the evidently-loaded state of your digestive system. Take Pepsine with your food for a time. More open-air exercise should be taken, and vegetables and fruits added to your food.

AMICUS.—The belt you name is calculated to do good. It is a truly electrical belt. We have tested it.

PHYSIOLOGICAL.—Usually arises from indigestion or chills. Look to the ventilation of your rooms, and take Pepsine with your food, as an experiment in view of a possible digestive cause of the redness. If not bettered, write again.

PERSEVERUS.—You have surely not told us the full history of your case. There must be some definite cause for the symptoms you

[*Continued on page* 256.

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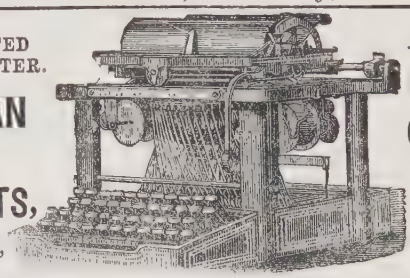

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name as of recent origin; and the bleeding must surely have arisen from some cause within your knowledge. Our advice to you is to see a surgeon and submit your whole case to him. As you do not give us full details of your ailment and its origin we cannot presume to advise yon.

CARVER.—Take for a time the tonic recommended to "Dentos" in HEALTH No. 67, and bathe the hands frequently in a solution of boracic acid and warm water—a teaspoonful or so of the acid to a bowl of water. What you complain of is merely a sign that your system is a little low.

C. F. J.—We think you should undergo a thorough medical examination at the hands of a competent physician. Your symptoms, while not alarming, are such as to call for such an examination, which will relieve your mind and put you in the way of recovery.

YORKSHIRE.—See to your digestion. Rest after food is especially necessary in your case. Avoid tobacco for a time, and take a pill consisting of two grains sulphate of quinine, an hour before dinner, for a week.

JULIUS.—Pare the corn well, and then paint it twice or thrice a day with liquor arsenicalis. See that this fluid is labelled "poison," and kept locked up. Tincture of arnica (30 drops added to a wine-glass of water) is often used as a lotion for corns, applied to the corns on lint.

OUTIS.—Sleep on a hard mattress; avoid suppers and fluids late at night; take open-air exercise; avoid constipation; use cold sponging each morning, and take a teaspoonful of Fellows' Syrup of the Hypophosphites in a wine-glass of water, thrice daily, an hour before meals. Above all be cheerful, and keep your mind occupied with healthy thoughts. You will get quite well in time, and you should remember that quacks often exaggerate symptoms which are perfectly normal and natural.

J. LEE.—No method except microscopical inquiry. Use the "Anglo-Swiss" brand; it is a pure milk. There are other excellent brands on sale. We are surprised to hear you have any difficulty in obtaining the Lime Juice. Write direct to the makers, Albemarle-street, London, W.

ASHAMED.—Difficult to say the cause of the blotching. Your description does not make clear any probable cause. We should recommend you to see a physician. There is a "bronzing" of the skin known to medical men, but only a personal examination can assure a physician whether your case comes under this category. Apply a little pure Vaseline to the part.

CLYDE.—Take the following mixture for ten days or a fortnight at a time, at intervals of, say, three weeks:—Iodide of potass, two drachms; infusion of calumba, six ounces. A dessertspoonful twice daily. Gargle the throat with chlorate of potass; or allow one of Wyeth's Chlorate of Potass Lozenges to dissolve in the mouth. Avoid chills, and be careful of your general health.

W. S.—The artificial teeth (if on a plate) should certainly be removed every night and cleaned. They are very liable to induce stomach disorder if allowed to remain. The mixture recommended should not be taken continuously. See to the food, which should be light, and give a little of Morson's Pepsine (as directed on the bottle) with the meals. Change of air to a warm sea-side place might do good.

W. DUNN.—Try the lime powders recommended to "T. H." in No. 64 of HEALTH. Take a warm bath twice weekly, and avoid chills.

F. W. H.—Have your ears syringed. What you name often arises from wax in the ears. Who was the aurist consulted? If a competent man, he should have been able to advise you. [Note, please, that your letter addressed to the "Publisher" should have been sent to the Editor of HEALTH.]

INSPERANS.—In such a case as yours we should strongly recommend a thorough surgical examination by a competent surgeon. He alone is able to advise you efficiently in the somewhat complex ailments from which you suffer. We can send you address of such if desired, on receipt of stamped, addressed envelope.

A. F. G.—Call at Mr. Browning's, 63, Strand, and have your sight tested. You probably require efficient preservers. If the dimness should continue or grow worse, you must consult an eye-surgeon; but probably a visit to Mr. Browning will put your sight in order. Take fifteen drops *Fer Bravais* in water thrice daily; and rest your eyes as much as possible. A holiday change will do you good.

TACK BAG, 12.—You are decidedly over-anxious about yourself, and by such anxiety you defeat your own cure. See advice to "Autolycus" in No. 67 of HEALTH. Rely on such means as the cold sponging, early rising, hard mattress, &c., for a cure. Above all, look at life more cheerfully, and be more hopeful. There is no reason for despondency.

G. S.—Rest after meals is absolutely necessary. See that you attend to this. Take Morson's Pepsine with your food (as directed on the bottle), and let your diet be light—soups, fish, eggs, puddings, &c., for a time. Eat fruits as well. You should spend your holiday at a bracing sea-side place. Try Rhyl or Blackpool—if the latter is not too relaxing. Whitby is bracing.

WEARINESS.—The reply above given to "Tack Bag" applies to your case. You are over-anxious and alarmed without cause. See and follow advice to "Autolycus" in No. 67 of HEALTH. By attention to these details you will recover your strength and tone. Of course, you should bear in mind that mental over-work is prejudicial to you in many ways.

IMPLEMENT WORKS.—Yes; the belt may tend to do good. There can be no harm in giving it a thorough trial. It is a genuine electrical appliance; only, as before, we must add that cheerful society and lively mental employment are likely of themselves to work out your cure without further treatment. It is your mind, not your body, which troubles you.

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• HEALTH •

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, AUG.* 1, 1884.

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Notes by the Way

"Health is the foundation of all our physical happiness."—*Herder.*

THE state of the Thames at the present juncture, and more especially with cholera-prospects looming in the by no means distant horizon, is causing a large amount of uneasiness in London and neighbourhood. The water of the river has been "disinfected" on a wholesale scale by means of chloride of lime; but, as we write, a proposal to use permanganate of potash (the active principle of "Condy's Fluid") has been mooted. We learn that at every tide eleven tons of chloride of lime are sent into the river at Crossness and Barking Creek. The lime is poured into the sluices in the proportion of four grains to the gallon of water. The cost of one grain more per gallon would mean ten additional tons of the chloride; and as this disinfectant costs the Board of Works some £9 per ton, it may be gathered that the disinfection of the Thames is no by means a light duty in face of the attendant expense.

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THE permanganate of potash will cost the Board of Works — when the compound is manufactured by the Board's officials—£25 or £30 per ton. As this salt is far more efficient as a disinfectant than chloride of lime, and as the cost of the operations (which at present average £200 per day) will not be exceeded when the potash is used, it seems clear that the Board of Works has been well advised in its substitution of the permanganate for the lime. It is said that when the potash compound came into demand, its price rose to £140 per ton.

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WHILE the authorities are thus moving in the matter, we find Captain Hussey, principal Dock Master of the East and West India Dock Company, reporting that "the river is in a fearful condition," that "the stench from the sewage is very bad," and that "the water is very thick and black." The locality here alluded to is that in the neighbourhood of the densely-crowded docks.

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AFTER all, the problem of the Thames is the problem of every other river which is used as an open sewer. This sewage problem, as we have before now pointed out, will require sooner or later to be fully faced by the nation. The only clear solution of the question seems to lie in the direction of the free and absolute conveyance of all sewage in closed aqueducts or sewers to the sea. As, to-day, we bring water into our towns, by means of great engineering enterprises, from distant lakes, so in the near to-morrow of sanitation, we shall have to convey our sewage by means of similar undertakings to the ocean. Only by such a plan can we hope to preserve our water-supply pure, and to avoid the countless evils which year by year the accumulated sewage of our cities brings home to our doors.

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IN Paisley, "flake charcoal" is being used by direction of Dr. Richmond, the medical officer of health, for disinfecting purposes. Added to decomposing matter, charcoal acts as a powerful deodorizer, effectually checks foul odours, and prevents the dissemination of disease. Messrs. Campbell & Co., of Paisley, manufacture the "flake charcoal" in question. From its moderate price, and from its effectiveness, this substance might well be more widely used as an application to drains, manure-heaps, &c., at the present time.

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THE London, Brighton, and South Coast Railway Company announce that during the summer and autumn months, a supply of fresh drinking-water will be obtainable by passengers at certain stations on the line. The water will be supplied to passengers by attendants at a charge of one penny per glass. Would it not be as well for the Company to supply water free of cost? A nice little profit, it is true, may be made out of water at a penny per glass; but we hardly think the British public will be tempted to avail themselves of the Company's offer. The idea of supplying water is a capital one: the practice of making any charge for the water is ridiculous. Let the Brighton Company provide clean drinking-fountains at every station, lay on a supply of good, pure water, and allow passengers to help themselves. That is the true fashion of serving the public. A penny for a glass of water—even when purveyed by an attendant—is a kind of "thank-you-for-nothing" service. Why, for a penny, the passenger should be able to get a tumbler of milk. In the higher era of railway-management, this latter luxury will doubtless be a realized fact.

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CREMATION makes progress in France. The Prefect of the Seine means to establish Siemens furnaces in the Paris cemeteries, wherein may be cremated all unclaimed bodies. The public and ordinary practice of cremation is likely to be mooted at no distant date in France. If the practice were at present in operation in Toulon, a vast amount of future danger, in the shape of the possible re-awakening to vitality of cholera-germs, would be avoided.

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THE dairy as a centre of disease is, of course, a well-worn topic. It is, however, a theme which, unfortunately, is constantly receiving fresh illustration. Mr. Farrow, the urban sanitary inspector of Leek, has lately revealed some woeful facts regarding the gross carelessness and ignorance which prevail in the district under his superintendence. What are we to say of a case in which a scarlet-fever patient was treated in a room in which cheese was ready stored for market? What should be said (or done) to the person who was actually found making cheese while in the height of scarlet-fever? It seems almost absurd to read of a person ill with this fever milking cows. Yet such was the nature of one of Mr. Farrow's "finds." In a fourth case, the person who was attending a very bad case of the fever, was found engaged in preparing milk for despatch by railway!

And yet we wonder occasionally "where fever comes from!" When we think of the milk from these polluted sources being sent forth into towns, and when the so-called "mysterious outbreak" of fever appears in our homes, as a consequence natural indignation almost overleaps its bounds, and declares that such proceedings should be included under the criminal codes of our land. Until something of this kind is done, we shall fail to attack the ignorance, and often inexcusable carelessness, which send death and disease into our homes. The man who robs us of our purse in the street is promptly seized and imprisoned; but the man who robs us of time and money by diffusing fever, and who may steal from us our life itself by his carelessness is allowed to escape scot free. Truly, the patience of sanitarians would require to be more than equal to their hope.

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The *Glasgow Herald* recently contained the following:—"At the Central Police Court, Glasgow, on Saturday, before Stipendiary Gemmel—two young men named Thomas Fleming and John Goodwin were charged with a contravention of Section 135 of the Glasgow Police Act, by distributing in the streets, on Friday, indecent pamphlets, issued by so-called "medical men" in Manchester. Both the accused are Englishmen; they stated that they had just newly arrived in the city. A constable in Jamaica-street saw the men give away the booklets to all and sundry. Superintendent Boyd mentioned to the Magistrate that complaints about the distribution of this harmful literature had been received by the Chief Constable, and that instructions had been issued to all officers in the force to arrest any one found giving away the objectionable books. Fleming was fined 40s., with the alternative of fourteen days, and Stipendiary Gemmel remarked that he would have been better satisfied if he could have made the punishment imprisonment without the alternative of a fine. It was pointed out in this connection by Mr. M'Phee, the Procurator-Fiscal, that imprisonment without the chance of a fine could be inflicted under the section, and the second man, Goodwin, was accordingly sent to gaol for fourteen days."

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We are again pleased to be able to call attention to the gratifying fact that in Scotland, as in the English provinces, the law is capable of arresting, in an efficient manner, the flood of objectionable and scurrilous literature with which the disreputable quacks of London, Manchester, Liverpool, and Birmingham inundate respectable society. There is a firm hailing from the last-named town whose advertisements we regret to see are allowed to appear in several respectable newspapers. Under the specious title of a certain "Institute," these Birmingham quacks conceal their names and mask the obnoxious business they pursue. It would be well if editors and newspaper proprietors, who have certainly no interest in aiding quackery, would issue instructions against the acceptance of all such announcements. Cut off from appealing to the public through the press, and liable to be arrested for distributing their filthy literature in the streets, the quacks would soon be made to feel the pressure of opinion, and find their "occupation gone." While we rejoice to learn that in the provinces, the quacks meet their deserts, it is lamentable to think that in London, the public have no redress from this nuisance of the streets. Many an unsuspecting person—if our own correspondence is to be believed—has dated the loss of money and health from the dissemination of the lies and trash which these pests of society are allowed to distribute freely in the public thoroughfares of the greatest city in the world.

Original Essays

"Life is not to live, but to be well."—*Martial.*

WHAT TO DO IN A CASE OF DROWNING.

By "M.D."

The Editor of Health having asked me to contribute to his pages a short account of "what to do" in the case of the apparently drowned, by way of attempting to restore them to the land of consciousness and the territory of active life, I have much pleasure in complying with that request. In the first place, I know, from a long experience of professional life, that the number of preventable deaths from drowning is very large. The public, seeing a man taken out of the water, pale, pulseless, with breathing arrested, and with no sign of life apparent, is too apt to conclude that all hope is gone, and that the individual has really perished. There is no greater mistake or more lamentable ignorance than this. Persons have been restored to animation after more than an hour's hard work. Every doctor, as was recently remarked in Health, knows of such cases. The mere pulselessness, suspension of breathing, and apparent cessation of the heart's action are signs, not of death, but of *temporary suspension of the vital functions.* Left in this state, the man will perish. Properly attended to, he will probably recover. What we have to do—and, I should like to add, *to do promptly, energetically, and at once*—is to attempt to fan the lingering spark of life into its usual flame.

In the second place, I should remark that many lives are lost in drowning-cases, from applications of erroneous and barbarous methods of treatment. For example, I have had more than once, at cost of considerable opposition, to prevent the body of a half-drowned man from being rolled on casks. At the seaside especially, this treatment is often adopted, owing to the prevalence of some extraordinary idea regarding the effectiveness of such treatment in getting rid of the water the patient is supposed to have swallowed. Again, I have had to caution people against holding the body of such a patient up by the feet, and more than once I have seen the evil effects of placing the half-drowned man in a warm bath, under the utterly mistaken notion that this treatment would revive him.

With numberless errors of this kind at hand, it is evident the demand for ambulance instruction on the part of the public has come none too soon. It is by no means a difficult thing to acquire a knowledge of the means to be adopted in cases of immersion in the water. The saddest part of any man's (or woman's) life is to know that the life which has been lost, might have been saved by the instant application of simple ambulance information.

In drowning cases there is seen a kind of graduated scale, in respect of the severity and gravity of the occurrence. Thus let us take a case of what I may call simple immersion. Here, a person falls into the water, and is promptly fished out. He has never lost consciousness, and is only dazed by the fright and plunge. In such a simple case no treatment is necessary beyond that which common sense dictates. The individual should at once change his clothes; he should be briskly rubbed down with hard bath-towels; and he should go to bed (and lie between the blankets), so as to promote warmth and to avoid possible chill. After a few hours' rest he will probably feel perfectly well.

Going a step further, we find the case of the person who has been rescued in an unconscious state, but in whom

breathing is seen to be natural enough in a way, and in whom the heart and pulse are found to be hard at work. Here, what should be done is simply first to loosen every garment in the neighbourhood of the neck, braces included (a standing rule in *all* cases of insensibility), so as to expose chest, neck, and face to the air. We must then rapidly turn the patient face downwards; one of the arms being placed under the forehead, so as to allow any water which may be present in the mouth and upper part of the throat to escape. Particularly see that the tongue falls forward. Wipe and cleanse the mouth; turn the patient round, and by this time consciousness will likely have returned. The escape of even a small quantity of water from the mouth will aid this latter result; and when the patient opens his eyes and regains consciousness, hurry him off to bed, and promote warmth as above described. If he is very cold and chilled, use hot-water bottles or heated bricks to the soles of the feet, pit of stomach, and armpits. When he can swallow, a very little warm water, warm coffee, or warm brandy and water may be given at intervals. It is a most unwise thing to give *large* quantities of stimulants or fluids of any kind under such circumstances. If the patient feels weary and heavy, let him go to sleep. If his breathing is rather laboured and painful, a large mustard plaster on the chest and below the shoulders will relieve him.

Let his bedroom, above all, be airy and cool. Turn out all useless persons, of whom there is usually a superabundance in such cases. As I have heard the Editor of Health remark:—"These persons consume the pure air (and frequently the spirits) meant for the patient alone."

An admirable plan which assists in restoring the circulation in all cases of drowning, whether consciousness is present or not, is that of rubbing the legs and arms *upwards*, with the warm hand or with warm flannels. In this way, the blood in the veins is assisted in its return to the heart, and that organ again thereby encouraged to resume its duty. Sometimes vomiting should be induced, if the stomach feels distended, and if the difficulty of breathing continues.

From such a simple case of loss of consciousness we now come to those instances in which death is simulated in the most exact manner. These latter are the most serious cases, of course, with which the public may have to deal in the absence of the doctor. Keep in mind what I have already said—that not even the fear, or the conviction, of the person being already dead justifies you in ceasing attempts to revive him. You should make it an inviolate rule in every case of apparent death *to persist for hours, if necessary*, in the attempt to restore consciousness.

Fig. 1.—The First Movement in Artificial Respiration.

Fig. 2.—The Second Movement in Artificial Respiration.

The person, then, let us suppose, has been taken out of the water. As before, loosen everything about neck and chest; bare the chest completely, in fact. What you have now to do is (1) *to restore breathing—that* is the main duty, before which all other duties pale in significance; (2) after breathing is restored *to promote warmth*, to restore the circulation, and to tide the patient over the effects of fright, cold, and collapse.

Primarily, as before, turn the patient over on his face, one arm bent beneath his forehead to clear the mouth of water; and see that the tongue is well forward. *The tongue allowed to lie back in the mouth, may obstruct breathing, and*

render vain your best efforts. Excite the nostrils with snuff, hartshorn, rub the chest and face; and dash hot and cold water on chest and face. If these means are not effectual in a few moments, or if (as is usual) they are not at hand, then you must *at once* begin the practice of *artificial respiration* (or breathing).

There are two ways of exciting the chest and lungs to perform their natural duties. One method — that of Marshall Hall—is practised as follows :—

Place the patient on his face, and fold a coat for his chest to rest upon. Now turn the patient gently (gentleness and firmness—not roughness—is required all through this work) on the side; then briskly reverse him on his face. Next place him on his side as before, then on his face, and so on, repeating these movements fifteen times per minute, and varying the side on which he is turned once every minute or so. The explanation of this method is easily learned. When we place the patient on his side, air enters the lungs; when he is placed on his face the chest is compressed, and air is forced out. The movements of breathing are thus imitated. It must be added that when the patient is placed on his face a person should make firm and sudden pressure with his hand on the back between the shoulder-blades, so as to assist in compressing the chest and in imitating "breathing out." Of course, during these operations the mouth must not be allowed to come in contact with the ground or table; and it should be made a rule that the tongue be well drawn forward or secured by an india-rubber band placed over the tongue and under the chin.

The second method of "Artificial Respiration," and that most commonly employed, is that known as "Silvester's Method." Here we operate as follows :—

(1) Lay the patient on his back on a flat surface, tongue secured, as before, and chest bare; support his head and shoulders by a pillow or folded coat (*see figures*). (2) Now stand or kneel behind the patient; grasp his arms above the elbows, and draw them steadily upwards above the head, *keeping the arms so stretched* (Fig. 1) *for two seconds.* Air is thus drawn into the lungs by the expansion of the chest. (3) Turn the arms down, and press them *firmly* against the sides of the chest for two seconds (Fig. 2). In this way air is expelled from the lungs. (3) Repeat these movements from fifteen to twenty times a minute, thus imitating the natural periods of breathing. Take the time from a watch, so as to ensure regularity of performance. (4) Direct an assistant, at the moment the arms are turned down (Fig. 2), to press firmly inwards, with one hand on each side, at the bottom of the chest. In this way the movement of "breathing out" is assisted, and the "midriff," or great muscle of breathing, which separates chest from abdomen, is incited to act.

It should be added that all this necessitates hard work; but it is labour expended in the noblest of causes—that of saving life. It is therefore well to send for relays of workers where these can be had. When natural breathing is restored, adopt the other measures for restoring warmth, but see also that during the performance of artificial respiration the limbs are being rubbed upwards, and warmth applied. Cease the movements when you observe the patient attempting to breathe of himself. If a galvanic machine is at hand, one sponge of the machine might be applied to the bottom of the chest, and the other to the heart.

Scott's Midlothian Oat-Flour.—There is no preparation which can be assimilated with greater facility than such a flour as this. Those who suffer from indigestion might substitute for their ordinary breakfast materials this flour, prepared according to the recipe given by Messrs. Scott and printed on the tins.—Ed Health.—[Advt.]

Lastly, here are a few maxims worthy of repetition, and which should be attended to in connection with the treatment of the apparently drowned :—

1. Never roll the body on casks.
2. Never hold the body up by the feet.
3. Never put the body into a warm bath save by the doctor's orders.
4. Never neglect to send for the doctor (a point often forgotten in the confusion), and for assistance in the way of helpers.
5. Never allow crowding around the patient or in his room.
6. Never despair, above all things else—but work away hopefully, for hours if need be.

A CHAT ABOUT DISEASE-GERMS.

By Dr. Andrew Wilson.

PART II.

Among the germ-forms, or lower plants, which are capable of producing disturbance of health, is one figured in Mr. Grove's book,* and named the *Sarcina ventricula.* The late Professor Goodsir, of Edinburgh, discovered in 1842 that certain cases of stomach disease were associated with the presence of *Sarcinæ.* These bodies were found in the vomited matters, and resembled little packets carded with twine—hence the name *Sarcinæ*, meaning "bundles." Whether or not these organisms—for they are living cells (Fig. 1)—are the cause of the disease with which they are associated has been made the subject of much discussion. Probably the view that the *Sarcinæ* appear as the result of the food being over-delayed in the stomach, is the correct one. Frequently the "yeast cells" figured in our last article (see Health, No. 68), are found in cases of stomach-disease in which these *Sarcinæ* appear.

Fig. 1.—*Sarcina Ventriculi*—As found in the stomach (highly magnified).

Like the yeast-plants, these *Sarcinæ* probably set up fermentative action in the stomach, and thus cause digestive disturbance of a serious kind. The remedy prescribed by physicians is simply a germ-killing substance. In cases of stomach-complaint in which *Sarcinæ* appear, sulphite of potash or of soda is given. The result of this treatment is to liberate sulphurous acid gas in the stomach; this gas, as every one knows, being a powerful disinfectant, and an enemy to germ-life. According to Mr. Grove, these germs consist of roundish cells (Fig. 1), "united in groups of 4, 8, 16, or a few more," and forming cubes with rounded-off corners. He adds that these *Sarcinæ* are liable to occur in the healthy stomach of man and higher animals, as well as in the blood. This being so, we may regard the *Sarcinæ* as simply developing to excess, when, in consequence of pre-existing disease, the condition of the stomach favours their increased development.

The most famous of the germ-tribe, however, are those forms named *Bacilli.* These organisms have been frequently alluded to in these pages as the probable cause of cholera, consumption, and other diseases. Mr. Grove defines the *Bacillus*-tribe as being nearly related to those forms known as *Bacteria.* They consist of long cylindrical cells, combined in straight, rod-like rows. They multiply

* "A Synopsis of the Bacteria and Yeast-Fungi." By W. B. Grove, B.A. (London: Chatto & Windus. 1884.)

by cross-division, often forming a dense mass or gelatinous colony (or *Zooglœa*, as it is called), which is really a kind of resting-stage, preceding the development of the minute bodies called *spores*, from which new *bacilli* spring.

In the *Bacillus anthracis* (Figs. 2 and 3), which causes the *anthrax* or *splenic fever* of cattle, we find an excellent example of this group of disease-germs.

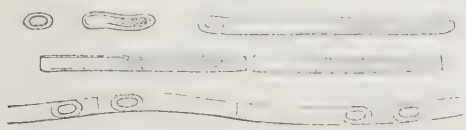

Fig. 2.—*Bacillus anthracis*, or germ of Splenic Fever, and its development. (Highly magnified.)

Here, the *bacilli* appear as usually motionless rods, often united to form bent threads. The *spore* (or seed) is seen as the minute particle on the left of the figure (Fig. 2). This spore lengthens by ordinary growth, and becomes the bacillus-rod. By-and-by, when this rod in turn is destined to reproduce the species, spores form in its substance, as seen in the lower bacilli, these spores being set free and developing into new rods. Speaking of this development, Dr. Klein says: "As long as the bacilli grow in the depth of a fluid they never form spores, but when grown on the surface, with free access of air, or on solid media (*e.g.*, serum gelatine, gelatine broth, &c.), the bacilli, having developed into filaments, proceed to form spores. But they may form spores, even in fluid media, if by some accident, either by stickfng to the glass vessel containing the fluid or by means of a cotton-wool fibre, some of the bacilli remain on the surface of the fluid."

It is also important to note that the spores remain alive under conditions which kill the bacilli. Drying bacilli in a thin layer "invariably kills them," says Dr. Klein, "but the spores remain unaffected." An important observation regarding these bacilli has also been made in the discovery of the fact that these bacilli can grow and form spores outside the living body when well supplied with oxygen. "Thus," says Dr. Klein, "if animals, such as sheep or cattle, die of anthrax in a field, the bacilli of the effusions from such animals (*e.g.*, urine, blood, effluvia from the mouth and nostrils) always contain numbers of the bacilli, and these will be able to grow indefinitely on the surface of the soil, there being always present a large amount of suitable nourishing material, like vegetable and animal decaying matter, and as free access of air is always ensured, they will eventually form spores. Such soils, owing to the presence of these spores, will remain a permanent source of infection to sheep and cattle sojourning on them. (Koch)."

Bacilli, however, may infringe the human domain, and produce certain diseases of the gravest import. Thus, when received by man, the bacillus found in the splenic fever of cattle (Figs. 2 and 3 *a*) causes the well-known malady named "wool-sorters' disease,"—which is simply human *splenic fever* or *anthrax*. This disease is caught by those whose duty leads them to handle infected wool and hair obtained from animals which have died of the disease. Probably the bacilli or their spores enter the body in the dust, which, arising from the wool, is inhaled by the workers, and thus produces the serious effects seen in the course of the disease.

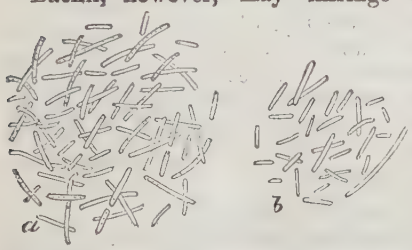

Fig 3.—*a*. Bacillus from the blood of a cow which had died of splenic fever. *b*. *Bacillus ruber* (found on boiled rice).

The most famous of the Bacillus family, however, is that (Fig. 4) found associated with the condition called *tuberculosis*, of which "consumption" is a variety or species. Here we see rods of slender size, ranging in length from one-half to one-third of a human red blood-corpuscle; this latter averaging the $\frac{1}{3000}$th part of an inch in diameter. In all cases of tubercular disease, these bacilli are found. They exhibit no movements, and are often seen to contain spores (see Fig. 4), while there is no doubt that they arise from spores within the body, and that the dire effects they produce are in part due to this latter power. The "sputum" or matter coughed up from the lungs in such cases contains these spores; and it is to this latter fact that we may attribute the reason why such material retains its disease-producing properties for lengthened periods. The bacilli can be cultivated artificially; animals inoculated with these cultivated "germs" invariably developing tubercular disease.

Fig. 4.—*Bacilli* from the Human Lung (highly magnified).

There would thus seem to be little doubt that these bacilli are the true cause of consumption and allied conditions. Inoculation with them produces the disease—the relation between cause and effect is thus capable of being clearly demonstrated; and it certainly must be accounted one of the most important of recent microscopic triumphs, that the true nature of this fell disorder has been elucidated by the patient work of science.

In the last number of the *Revue d'Anthropologie* is a paper by M. Charpy on the xiphoid angle, which incidentally exemplifies the mischief done to the natural symmetry of the female figure by tight-lacing and other vicious customs in the matter of dress. They more or less falsify all measures of the thorax taken after thirty years of age, and reduce the angle in question from its normal 75 degs., to 52 degs., or even 45 degs.

Human Progress.—"When," says Dr. Parkes, "we look around us and consider the condition of the world—the abundance of life, its appalling waste; the wonderful contrivances of the animal kingdom, the apparent indifference with which they are trampled under foot; the gift of mind, its awful perversions and alienations; and when, especially, we note the condition of the human race, and consider what it apparently might be and what it is: its marvellous endowments and lofty powers; its terrible sufferings and abasement; its capacity for happiness and its cup of sorrow; the boon of glowing health, and the thousand diseases and painful deaths—he must indeed be gifted with sublime endurance or undying faith who can still believe that out of this chaos order can come, or out of this suffering happiness and health." And yet, on the other hand, when we see what has been accomplished by man in influencing the quality of his race and in increasing health and comfort, it is difficult to fix a limit to this progress.

Swimming and Ling's Swedish Exercises.—Mrs. Florence Williams, Certificated Teacher. Schools and private families attended.—The Crown Baths, Kennington Oval, S.E.—[Advt.]

Personal Health

"Be timely wise;
With health all taste of pleasure flies."—*Gay.*

THE PHYSIOLOGY OF THE FEET.

By T. S. Ellis, M.R.C.S.,

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[Reprinted from the *Lancet* by permission of the Author.]

[THIRD PAPER.]

In the boot it is of first importance that the sole (technically, the part in front of the hollow or "waist") should allow the great toe to occupy its natural position; it must, therefore, be straight, or nearly so, on the inner margin; but it is of little use to provide the room thus given unless it be occupied: the foot must be invited to occupy it by giving plenty of room in the upper leather on this side. It is obvious that where a flexible material is fixed on both sides and left loose between, it can be drawn furthest from the surface to which it is attached, in a line mid-way between the fixed parts. For this reason the highest part of the foot, which is on the inner side, will, in any case, have some tendency to go to the middle line of the boot where most room can be made; this tendency is largely and needlessly aggravated by the high ridge of the last being along the middle line, instead of being on the inner margin. But not only ought the room there given to be much more according as the foot projects the more upwards; it ought to be proportionally more. I have insisted that the foot does not lengthen in walking, but rather shortens. This shortening, due to the powerful action of the long flexors, causes the foot to rise across the middle, the rising being almost entirely on the inner side. Here, therefore, over (not by the side of) the ball of the great toe is special room required. The lateral thrust, too, already spoken of as consequent on turning out the toes, tends much to displace the foot and to throw it against the outside of the boot. Toe-caps also are objectionable, as giving the most room in the middle line and inviting the great toe to occupy that position.

No useful or ornamental purpose is served by leaving space unoccupied round the outer margin of the sole opposite the little toes, as if it were necessary to make the two sides of the boot to match. No angle existing in nature, none should be represented. The outline of the sole of the boot should conform to that of the foot.

If it be true, as already stated, that grace in walking, as well as free propulsion of the body onwards, and maintenance of the arch in walking, are all due to the free action of the flexor muscles, letting the heel down with gentleness and precision, and raising it with firmness and vigour, it follows that none of these can be if the boot prevent the heel from going down, a necessary antecedent to springing up. A low heel, therefore, if any, is imperative. The perfect boot should have none. Nor can the free action of the flexor (or bending) muscles have full effect, so as to draw the toes to the ground, if the sole be turned up at the toes, especially if it be a stiff one. Some turning up will come from walking, however good, but there is no reason why it should be aggravated by having the boot-last so. In it the sole should be flat to the end.

Objection is made that boots with a straight, or nearly straight, inside line, give the feet a pigeon-toed or inverted appearance, which is unnatural. This is not altogether due to the eye being accustomed to a more conventional pattern. It is, I am sure, mainly due to a removable cause. Any conspicuous line, that of the laces or a seam, is always carried from the front of the leg to a central point on the upper surface of the foot. The eye, falling on this line, in imagination continues or produces it, and so divides the front part diagonally into two very unequal portions, the larger on the inner side. I have found that if the line of the laces or seam be kept parallel throughout to the line of the long extensor tendon—in other words, along the crest of the ridge, thus marking out a distinctive feature—the unpleasant effect is removed.

In proper walking, which cannot be done in an improper boot, friction of the foot on the sole and of the latter on the ground is reduced to a minimum, the sole being pressed against, not rubbed along, the surface. This is shown by the very little wearing of the leather; when at last it does give way, it should be at an oval spot a little distance from the margin of the sole, under the middle joint of the great toe. This is the last point to leave the ground in walking; here, therefore, is the greatest tendency to slide on the surface, and consequent friction.

The great toe, in any but the most perfect feet now to be found, is so easily diverted outwards that socks and stockings with a straight inner line are very desirable, indeed, no others can be said to really fit the feet. When any considerable distortion exists, a separate stall for the great toe is necessary.

For the reasons given, a last should have the inner margin nearly in a line with the inner side of the heel, and joining in front by a rounded angle a long curve on the outer margin, where no angle should be shown. The sole should be flat, touching the base line in front. The thickest part (highest vertically) should throughout be on the inner margin, especially above the ball of the great toe. The boots should have low heels—to be perfect, none. The line of laces or of any conspicuous seam down the front should be in a line corresponding with the inner margin of the foot along the highest part. The boot should, if possible, be left on the last for a considerable time, to overcome the tendency of the leather to recoil after the forcible stretching to which it has been subjected, and so to fix it in its proper place.

Some boots, and the lasts on which they were made, are shown in the Health Exhibition which will serve to illustrate the latter part of this paper. They are exhibited by the maker, Mr. Henry Bletchly, of Gloucester, who has taken very great pains to understand my wishes, and to use his own thorough knowledge of the technical operations involved as a means of overcoming difficulties in carrying them out. I have every reason to be satisfied with the result. His case (No. 260, Class 13) I would commend to the attention of those interested.

Sanitary Inspections.—Fee for Survey and Report, in London, 2 Guineas. Estimate given and Improvement Works carried out when required.—The Sanitary Engineering Co., 115, Victoria-street, Westminster, S.W.—[Advt.]

Loss Prevented! Time and trouble saved, and linen and clothing protected, by using the "London Linen Marker," Name, Monogram, or Initials, 2s. 6d., post free. Name or address in Self-inking Nickel Press, 3s. 6d. to 4s. 6d., complete. Stamps for business or private use. Send for patterns. The London Rubber Printing Co., 33, Cheapside, London, E.C.—[Advt.]

Medical and Sanitary Exhibition, 1881.—Reward of Merit.—International Health Exhibition, 1884.—Stand 69.—Diabetes. Van Abbott's Gluten Bread, and all other suitable Foods for Diabetics, Dietary Table, Menu, Cooking Receipts, and Price List, post-free on application. Delicate Children. Van Abbott's Hypophosphite of Lime Biscuits, for Children suffering from Debility, Deficiency of Bone, or Ricketts. See the *Lancet* and Health. Constipation. Van Abbott's Bran Biscuits. Dyspepsia. Van Abbott's Malt Biscuits. Van Abbott's Vegetable Bread and Milk, Saccholac for Infants, Imperial Granum, Rolled Avena, and all American Cereals for Infants and Invalids. Hathorn Table-Water direct from the Springs in Saratoga, U.S.A. G. Van Abbott, 5, Princes-street, Cavendish-sq., London, W.—[Advt.]

THE PREVENTION OF CHOLERA.

The following instructions regarding cholera have been issued by the King and Queen's College of Physicians in Ireland :—

The College advise no alteration in the habits of living where these have previously been moderate and regular. All excess should be carefully avoided, especially in the use of alcoholic drinks, as it is of noted experience the intemperate who most certainly fall victims to the most fatal type of cholera, as of other epidemic diseases.

All food likely to cause indigestion or bowel-complaint should be carefully avoided, particularly fruit in a large quantity or in an unripe, decayed, or unsound state ; likewise fish or meat when in the least tainted.

Water should be used for drinking purposes only after being boiled ; and, in consequence of the possibility of milk being diluted with infective water, it likewise should be boiled before use.

Strict personal cleanliness should be practised, and the clothing should be adapted to the season and the weather.

All debilitating causes should be carefully avoided, such as excessive and long-continued fatigue and fasting, overcrowding, exposure to moist, stagnant, air, or to air loaded with organic effluvia.

During the prevalence of cholera any person affected by any of the following complaints should at once obtain medical advice :—(1) Diarrhœa, or looseness of the bowels; (2) Vomiting or sickness of stomach ; (3) Pains in the stomach or bowels ; (4) Pains or cramps in the legs. While such aid is being obtained the patient should be put to bed immediately, and warmth should be encouraged by the application of heat to the body and limbs. Also, in case of sickness of stomach, a large mustard poultice should be applied over the abdomen. In the event of cramps ensuing, diligent rubbing of the limbs should be resorted to.

Hot brandy-punch should be administered in small and repeated doses, and the diet should be restricted to rice, milk flavoured with cinnamon and brandy, or arrowroot prepared with milk or port wine.

Should relief not be shortly obtained, and the looseness of the bowels continue, ten grains of aromatic chalk-powder with opium, or twenty drops of dilute sulphuric acid, with five drops of laudanum, should be administered in a tablespoonful of water, to which a little brandy may be added. This dose, which is intended for an adult, may be repeated every hour for three doses.

The discharges from the bowels should be disinfected, and disposed of as quickly as possible. A wineglassful of the following disinfectant mixture should be poured into the vessels used by the patient, namely : Common sulphate of iron (green copperas), one ounce ; carbolic acid, a quarter of an ounce ; water, twenty fluid ounces, or one imperial pint.

Infected bedding and all articles of clothing worn by the sick should be destroyed by fire.

Scott's Midlothian Oat-Flour.—Messrs. A. & R. Scott, of Kingston, Glasgow, and Finsbury-square, London, have prepared a singularly pure and nutritious "Oat-flour," which bids fair to take high rank among the food products which are specially adapted for infants and invalids, and for the use of dyspeptics in particular, whose digestion is weak, and whose stomachs refuse to assimilate foods of ordinary kind.—Ed. Health.—[Advt.]

Coca Leaves.—The new stimulant gives renewed life and vigour to the *Weary* and *Overworked*. Dr. Blunt, of Northampton, says :—"The recuperative powers of this restorative are truly astounding." Sample packets, together with medical and scientific opinions, 13 stamps, post free, from J. T. Marks & Co., 17, Newcastle-street, Farringdon-street, E.C.—[Advt.]

HAY AND HARVEST WORK WITHOUT BEER.

Mr. Abbey, of the Church of England Temperance Society, writes :—"Farmers in considerable numbers have either given up, or are now giving up, the practice of giving their men beer in hay and harvest work. Conferences of farmers have recently been held in various parts of the country on this subject, and after full discussion it has been generally agreed that it was desirable to discontinue the practice of giving beer. At well-attended conferences of farmers in the Town Hall, Basingstoke, on June 11, and in the County Hall, Lewes, on June 17, the following resolution was unanimously passed :—

"'That in the opinion of this Conference it is desirable in the interests of both masters and men that the practice of supplying beer in the hay and harvest field be discontinued, and that all work be paid for entirely in cash.'

"All experience goes to prove that this change will be of great advantage to the men. They will soon fall into the way of providing themselves with good wholesome drinks at a small cost. Perhaps you will kindly assist by allowing the following receipts, that have been found useful, to appear in an early issue of your paper.

"Home-made Drinks for the Harvest.

"*Stokos* is a most refreshing and strengthening drink. It is easily made, and costs only 3d. per gallon.

"Put into a large pan a quarter of a pound of fine fresh oatmeal, six ounces of white sugar, half a lemon cut into small pieces. Mix with a little warm water, then pour a gallon of boiling water into it ; stir all together thoroughly and use when cold. The lemon may be omitted ; raspberry vinegar, citric acid, or any other flavouring may be used instead. More oatmeal may be used if preferred.

"*Cokos* is a good nourishing drink, made as follows :—Eight ounces of sugar, six ounces of good fine oatmeal, four ounces of cocoa at 10d. per pound, mixed gradually and smoothly into a gallon of boiling water ; take to the field in a stone jar. Cost 6d. per gallon.

"*A Good Harvest Drink.*—Boil half an ounce of hops, half an ounce of ginger (bruised), in one and a half gallons of water, for twenty-five minutes, add one pound of brown sugar and boil ten minutes more, then strain and bottle while hot ; it will be ready for drinking when cold. It should be kept in a cool place. Dried horehound may be used instead of hops. Cost 3d. per gallon.

"*Ginger Beer.*—Pour two gallons of boiling water over one pound of lump sugar, one ounce of bruised ginger, two lemons sliced ; let it stand till lukewarm, then add one tablespoonful of brewer's barm, or one small teacupful of baker's barm ; let it stand twelve hours, then bottle it. It will be ready for use in twenty-four hours. Cost, 4d. per gallon.

"Boiling water poured on a few slices of lemon, with a little sugar, makes a very refreshing drink. Butter-milk should be more used as a drink.

"One ounce of coffee and half an ounce of sugar in two quarts of water is a very thirst-quenching drink. So is cold tea, but neither of these is so supporting as the oatmeal drink.

"It is quite a mistake to suppose that beer or spirits give strength. They do give a spurt to a man, but that quickly goes off ; and spurts in hard, heavy work, too often made, certainly lessen the working power."

Pownceby's Pure Wines and Brandies, as analysed, and especially selected to suit medicinal purposes, may be obtained in small quantities at wholesale prices. Free delivery within fifty miles. Circular and price current by post from Pownceby & Co., Wine and Brandy Importers, 183, Oxford-street London, W.—[Advt.]

Healthy Houses

"A happy home must be a healthy home."—*Anon.*

KITCHEN CESSPOOLS AND THEIR DANGERS.

A cesspool is in old English a "sosspool"—that is, "soak-pool"—a place into which liquid slops and offscourings may be run, and from which, as usually constructed, it is hoped that the liquid portion will soak or drain away, thus sparing the proprietor the trouble of emptying it. The term is most generally applied, at present, to receptacles or cisterns constructed underground in the vicinity of the house, to receive the kitchen-slops, and sink-wastes, as distinguished from privy-vaults or receptacles intended only, or chiefly, for the reception of excreta, but it is also used by some writers as including the latter, and, as a matter of fact, a large number of cesspools receive both kinds of waste. The cesspools to which we specially refer at present are those into which excreta are not allowed to enter, but which are devoted chiefly, if not exclusively, to the reception of kitchen-waste. From time to time inquiries are received which indicate that the writers suppose that the only dangers in house-drainage are connected with the disposal of excreta, with privy-vaults or water-closet wastes; and that if these are properly arranged the sink-slops need little attention. This is a mistaken opinion, and it is time that people learned to recognise it as such. No doubt it is true that water-closet waste is more dangerous to health than kitchen-slops; it is more likely to contain specific contagia, and is more offensive, but considered merely as furnishing material in which may be developed dangerous organisms, as decaying organic matter or filth, there is not so much difference between these two forms of waste products after all, nor is a cesspool less offensive than a privy-vault. Neither of them are satisfactory appendages to a house, but where their employment becomes a necessity the same precautions at to location, construction, &c., should be applied to one as to the other. The essential points are to prevent leakage by making them watertight, to provide a free outlet for the gases which will be generated in them, and to locate this outlet at such a height that there shall be no danger that the gases escaping from it shall blow into the house. Such cesspools should be small, and emptied regularly and frequently. The most unwise disposition which can be made of a cesspool is to connect the upper part of it with a sewer. When a street is sewered, the cesspools on that street should be cleaned out and filled up with fresh, clean earth, and the house-drainage be connected directly with the sewer. To retain the cesspool under such circumstances is to insure that all the house-waste shall be in a putrefying condition before it enters the sewer, and hence make it impossible to keep the air in the sewer inoffensive.—*Sanitary Engineer.*

As a rule, white fish is more digestible than red fish, and the less oily are more digestible than those abounding in oil. The least digestible of the white fishes are probably the sturgeon and cod, especially in certain conditions—such as when the latter is tough and leathery. Most fresh-water fish, whiting, haddock, flounders, soles, and plaice are among those the most easily digested and the best suited for weak stomachs.

The "Boncontour" Stay-Belt and other Orthopædic Apparatus, made by K. R. Schramm, Orthopædic Mechanician, 64, Belmont-street, Chalk Farm-road, London, N.W.—[Advt.]

Jottings from the Journals

"Th' ingredients of health and long life are
Great temperance, open air,
Easy labour, littl care."—*Sir Philip Sidney.*

"The Drowning Season."—It must, we presume, be accepted as a general proposition capable of particular application in the most vexatious directions and specialties, that any and every sport, exercise, and pastime which involves a certain amount of personal risk will have an inevitable attraction for English folk of all classes and ages. On no other principle is it possible to account for the curious fact that, although year after year many lives are ruthlessly and uselessly sacrificed in such practices as bathing, boating, hunting, and skating, no lover of these several pursuits is deterred from indulging in them by the peril incurred. On the contrary, it is beyond question that this very peril adds zest to the pastimes. When therefore we encounter a paragraph in the press under the above ominous heading giving particulars of eleven deaths by what are, almost facetiously, termed "accidents" in the course of a few days, we do not dwell long on the mournful epitome, but pass it over with something of the same feeling as may be experienced on reading the bare statistical statement of a death-rate. Nevertheless, it is a grim fact that every one of these lives might have been saved by a little timely precaution. Either the bath was taken in too deep water or at an unsuitable spot, or there was some neglect of obvious measures and conditions of safety. Nothing would be gained by reiterating the warnings we have repeatedly given as to sudden plunges into cold water, if the heart be weak, or there be a tendency to cramp; as to severe trials of strength in buffeting with heavy waves or trying to swim long distances; and in going into the water weak or exhausted by want of food, or with a stomach so loaded that disturbance of the circulatory and nervous systems must almost inevitably ensue if there be even a moderate amount of congestion set up by the immersion in a fluid colder than the atmosphere. These and a score of other dangers arising out of, or dependent upon, states or diseases of the organism have been pointed out, and the importance of caution insisted upon. We preach to heedless ears. Tell an English man or boy that anything is dangerous, and he will burn to do it. If he be weak, he will try to behave as though he were strong. If he be unfit, by reason of physical disability of some sort, for a particular exercise, he will yearn, above all things, to do the impossible and to hazard the extremely perilous. In health he will scorn safeguards and precautions as signs and tokens of cowardice. We do not think that mere carelessness is so common as some people are apt to suppose. We believe it is downright foolhardiness that leads to "accidents" of the class represented as "deaths by drowning." This is an important consideration, and it is one that must to some extent modify what we have to say on the subject of the "drowning season" year by year. The accidents that occur are deplorable, it is true; but, on the whole, it is more honest to say that they are discreditable, and it is high time to have recourse to plain speaking. Pity must give way to reproaches, even though it be necessary to violate the rule that nothing but good should be spoken of the dead.—*Lancet.*

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Disinfection of Rags from France.—As order was issued last week by the Local Government Board, directing that all rags exported from Marseilles or Toulon, and intended to be landed at the port of Hull, shall first be

subjected to such a process of disinfection, or total destruction, as the medical officer of health may think fit. With the exception that it applies to the port of Hull only, and to rags coming from these two places, the order is identical with that issued in August last (see *British Medical Journal*, vol. ii., 1883, p. 386). This enacts that no such rags are to be landed until the master has been furnished, by the consignee of the rags, or some person duly authorised by him and acting on his behalf, with a certificate signed by the medical officer of health of the port sanitary authority, to the effect that such consignee or other person has given notice to the authority that he is prepared, immediately on the rags being landed, to cause them to be conveyed, with such precautions as the medical officer of health may deem necessary, to some place approved by the medical officer of health, such place being specified in the notice. When the rags are landed they are not to be removed, except with the express permission, in writing, of the medical officer of health, who is responsible for seeing that his requirements are complied with. These precautions are quite sufficient to prevent the introduction of cholera through the channel of rags, if, indeed, there is at the present moment any chance of the infection being thus conveyed; but it is to be observed that the order is applicable to cargoes coming from Marseilles or Toulon and arriving at Hull only. If, as seems probable, the outbreak continues to spread in France, it will have to be considered whether the order shall not become general, and apply to the whole seaboard of France; and in this connection it should be borne in mind that all rags imported into that country by sea are required at all times to be disinfected, the importation being restricted to certain ports where disinfecting apparatus have been provided.—*British Medical Journal.*

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Koumiss.—Koumiss has become a very common article of diet with dyspeptics, and, according to the Chicago *Review*, may be made at home at a cost of about fifteen cents per quart. The following directions are given for its manufacture:—Fill a quart champagne bottle up to the neck with pure milk; add two tablespoonfuls of white sugar, after dissolving the same in a little water over a hot fire; add also a quarter of a two cent cake of compressed yeast. Then tie the cork on the bottle securely, and shake the mixture well; place it in a room of the temperature of 50 deg. to 95 deg. Fahr. for six hours, and finally in the ice-box over night. Drink in such quantities as the stomach may require. It will be well to observe several important injunctions in preparing the koumiss, and they are—to be sure that the milk is pure; that the bottle is sound; that the yeast is fresh; to open the mixture in the morning with great care, on account of its effervescent properties; not to drink it at all if there is any curdle or thickening part resembling cheese, as this indicates that the fermentation has been prolonged beyond the proper time. Make it as you need to use it. The virtue of koumiss is that it refreshes and stimulates, with no after-reaction from its effects. It is often almost impossible to obtain good fresh koumiss, especially away from large towns. The above makes it possible for any physician to prescribe it.

A Valuable Invention.—It is gratifying to learn that Mr. R. Adams, of 17, Blackman-street, London, S.E., whose fanlight-openers and silent door-springs are being extensively used, has received large orders for his Patent Reversible Window. The sashes, although they slide up and down in the usual way, can be instantly turned inside out, enabling anyone to clean each side of the glass with ease, while standing in the room.—[Advt.]

Recreation and Health

"Health is the vital principle of bliss,
And Exercise of health."—*Thomson.*

HEALTH AND HOLIDAYS.

FOREIGN HEALTH-RESORTS.—V.

By a Physician.

Cabourg.—A pleasant little watering-place in Normandy, to which we may give a passing word. Living is comparatively cheap here, and the attractions, for those who are not positively *blasé*, many. There is a well-appointed casino and theatre, good sea-bathing, and various objects of interest to explore in the neighbourhood, amongst them a small place called Brucourt, where there is a saline iron spring, that in days long gone by used to be highly thought of, and even now is much recommended by some medical men when taken in combination with sea baths. The season at Cabourg commences about the middle of June, and ends with the first week in September. Hotels: Grand Hôtel de la Plage, Hôtel des Ducs de Normandie, Hôtel des Bains. The best way of reaching Cabourg is to take the boat from Southampton to Havre, thence proceeding to Trouville, and from there, by way of Houlgate, to Cabourg. The cost is about £2.

Cannes.—We have recently, in noticing a book by Dr. Marcet (see Health No. 50), so fully gone into the characteristics of Cannes as a health-resort, that any further description from us would seem almost superfluous; still, in order to give completeness to the series, we may now say a few words more. Cannes is a town of some 19,500 inhabitants, situated on the Mediterranean, at the eastern end of the Bay of Napoule. It is protected to the north by a range of high mountains, rising at some considerable distance from the coast, while to the west it is sheltered, though in scarcely so complete a manner, because less continuously, by another chain of mountains—the Esterels. To the east and north-east there are also mountains, but not of sufficient height to afford much protection. The prevailing winds at Cannes come from this quarter—*i.e.*, the one towards which least resistance is offered; and a north wind, or one blowing directly from the south, across the sea, is a comparatively rare event, particularly in the winter. It is a different matter, however, in regard to the mistral or north-west wind; and there are certain seasons of the year, more especially in November and March, when it blows with remarkable severity, though considerably checked in its fury by the neighbouring Esterels. The climate is very mild and dry, the mean temperature during the six coldest months of the year, that is, from November to April inclusively, being from 9 deg. to 10 deg. Fahr. higher than at Greenwich; and there are no fogs. Occasionally a mist will appear over the top of the Esterel hills, foretelling bad weather, but it never spreads down to the town. The amount of rainfall at Cannes varies very considerably with different seasons; and, though it exceeds that of London during the winter months by almost double the number of inches, the actual number of wet days is about half, or, in other words, it never rains at Cannes but it pours. As an instance of how fine the weather during the winter months is, Dr. Marcet tells us in his book that, on an average, not more than four abso-

Pure Water is such a vital necessity that, without it, illness is certain. None are more prone to the ill effects when impure than the young. To ensure a pure supply send a post-card to the London and General Water Purifying Company, Limited, 157, Strand London, W C., who will return particulars post free.—[Advt.]

lutely wet days occur from the beginning of November to the end of April, the mean temperature for these six months, according to observations made by him, being 50·8 deg. Fahr.; this, however, was taken at the seaside; inland, it would in all probability be somewhat warmer. The chief complaint for which the climate is likely to prove beneficial is chronic consumption, where there are no inflammatory or febrile symptoms; and even in its more advanced stages much relief is often afforded. Certain forms of bronchitis and asthma also do well here; rheumatism and gout, under certain conditions, are frequently benefited, and in some varieties of Bright's disease it is useful. Two things, however, should be impressed upon invalids; in the first place, save under exceptional circumstances, to avoid the sea-shore; and, secondly, to be very careful about venturing out after sunset. The reasons for this are that, in the majority of cases, the extreme heat of the sun, the sea air, and the wind, are too exciting and irritating, while after nightfall, there is often a sudden and treacherous fall in the temperature. Amusements at Cannes are of a varied nature, and the visitor will find no difficulty in enjoying himself. Hotels: Hôtel Beau Séjour, Continental Hotel, Prince of Wales Hotel, Hôtel de l'Esterel, Pavillon Hotel, Hôtel des Pins, Grand Hôtel Californie, Windsor Hotel, &c. Fares: from London, *viâ* Calais and Paris, thence to Marseilles, first-class, £8. 4s.; second, £6. 3s. A cheaper route, however, is by Dieppe, and so to Paris, the fares for which are, first-class, £6. 17s.; second, £5. 2s. 6d.

Cannstadt.—A town of 16,500 inhabitants, situated on the Neckar, close to Stuttgart, in a beautiful valley 600 ft. above the level of the sea. It has long been noted for three things—the efficacy of its mineral springs, the picturesqueness of its position, and the mildness of its climate. The waters contain a slight percentage of iron, with large quantities of chloride of sodium, and, in smaller proportion, the sulphates of magnesium and sodium. The principal form of complaint for which they are beneficial is dyspepsia; they are also usefully employed in certain cases of chronic skin disease. Hotel: Hôtel Formis. Route: *Viâ* Paris (or Ostend) and Cologne to Bingerbruck, thence to Mayence and Darmstadt, then on to Heidelberg, and from Heidelberg, *viâ* Bruchsal and Stuttgart, to Cannstadt. Fares from London, £5. 6s., £3. 17s.

Carlsbad.—One of the most celebrated and extensively-frequented thermal spas in Europe. It is situated in Bohemia, in a narrow valley on the banks of the river Tepel, thirty-two miles from Eger, and 1,480 feet above sea-level. In its geological aspect, the district is highly interesting, though, no doubt, much of what one hears regarding it is imaginary. Strictly speaking, Carlsbad would seem to be built on a hard layer of rock, termed Sprudelschale or Sprudeldecke, beneath which there is a vast lake of seething water. However that may be, certain it is that whenever this crust or rock, which in no place is thicker than three feet, and in some parts hardly so much, is broken through, the boiling water rushes up with tremendous force, and if the outflow at one place be stopped, the discharge at the other orifices is increased; while Baedeker tells us that, under exceptional pressure, the waters have even been known to force a new passage for themselves, to the imminent danger of the people dwelling above. This imaginary reservoir, the depth of which has never been ascertained—indeed, it is believed to be unfathomable—is called the Sprudelkessel (spring cauldron), and the Sprudel is the name given to the principal spring at Carlsbad. It has a temperature of 165° Fahr. Besides this, there are two other springs, the "Muhlbrunnen"—temperature 126° Fahr.—and the "Schlossbrunnen," with five inferior sources. The Carlsbad waters contain sulphate and acid carbonate of sodium (in considerably large proportion), chloride of sodium, a certain amount of iron, and, according to an analysis recently made by Professor Tichborne, a small quantity of lithia. The affections most benefited by their use are, under certain conditions, gout, rheumatism, enlarged liver and spleen, dyspepsia, and constipation. The presence of the lithia also renders the waters very beneficial in the treatment of urinary disorders, as counteracting the effects in the system of uric acid. The season extends from April to September, but the best time of the year for invalids to visit Carlsbad is during the summer months, when the climate is much milder and less variable than either early on in the season or towards its close. Hotels:—Hôtel de Russie, Anger's Hotel, Hôtel Goldenes Schild, Wiesinger's Hôtel National, Hôtel Erzherzog Carl, &c. Fares from London, *viâ* Cologne and Mayence, thence to Aschaffenburg, and from Aschaffenburg by way of Wurzburg, Bamberg, Oberkotzau and Eger to Carlsbad, £6. 16s., £4. 19s.

Cauterets.—A happy mean, as it were, between Luchon on the one hand and Barèges on the other. Like them, it is situated in the Pyrenees, at a considerable height (3,200 ft.) above sea-level, but it neither possesses the almost disquieting gaiety of the former place, nor the depressing effects of the latter. There is indeed, as Dr. Burney Yeo, in his work on health resorts, points out, an almost business-like air about Cauterets, observable not only in the authorities, medical and otherwise, of the town, but also in the patients; the former seem to realise the work that they have to do, and to be energetic over it, and the latter to have come with a full determination to take advantage of every opportunity, and, if possible, to be cured; but, on the other hand, the inhabitants don't disdain amusements, and of these they have an abundance, with a surrounding country of exceeding wildness and beauty. Cauterets is a small town (pop. 1,900), situated in a narrow valley or ravine which is almost completely hemmed in by mountains. It consists of one long street, broken in the middle by a large square, from which a foot-path leads up the hill to the principal thermal establishment, La Raillère; and along this path an interesting, though it must be confessed somewhat amusing, procession of drinkers may at most hours be seen wending its way. The Cauterets waters, like those of Luchon, are sulphur waters, and it may be said generally that they are efficacious in the same forms of disease. By some, however, they are considered to be milder and more sedative in their action. The cases that usually derive most benefit from their application are chronic bronchitis, asthma, consumption, diseases of the throat and skin, certain forms of scrofula, and many disorders of the stomach. The season extends from May to October. Hotels: Grand Hôtel d'Angleterre, Hôtel des Bains de France, Hôtel de Paris, &c. Route: *Viâ* Paris to Bordeaux, thence to Tarbes, to Lourdes and Pierrefitte; from the latter place the traveller will get a diligence to Cauterets, a distance of about seven miles. Fares from London: £7. 10s., £5. 11s. Or one may go to Bordeaux by steamer, if preferred. (See Arcachon.) Fares from Bordeaux to Cauterets (about) £1. 11s. 6d., £1. 3s. 6d.

International Health Exhibition. — Eastern Gallery. — No More Gas or Lamp used in Daytime.—Wherever there is a window, skylight, or fanlight, Chappuis' Daylight Reflectors can be adapted. They supersede all artificial light, and are manufactured at prices suitable for either noblemen's mansions or artisans' workshops. Prospectus sent on receipt of two stamps addressed (H.) Chappuis, patentee and manufacturer, 69, Fleet-street, London.—[Advt.]

Our Bookshelf

"Reading maketh a full man."—*Bacon.*

A BOOK ON TEA.

Tea and Tea-Drinking. By Arthur Reade. (London: Sampson Low & Co. 1884.)

"The cup that cheers" has always formed a prominent topic in the records and lore, no less of physiological science, than of social economy. The use and abuse of tea has proved a veritable bone of contention on more than one occasion of late years. It may be added that the proper place of tea—viewed as a beverage—has only of late years been fully recognised. Mr. Reade, whose "Study and Stimulants" was reviewed some time ago in these pages, now comes to the front with a contribution to the literature of the famous vegetable infusion. His book, artistically bound in an elegant paper cover, is sure to attract notice. As the result of a perusal of his pages, we may say that an hour or two spent in the mental digestion of the facts Mr. Reade details, will not be thrown away; while even the casual reader is certain to be amused, if he fails to find a great deal of instruction in the pages of the volume.

In a series of chatty chapters, the author contrives to present us with a large amount of information regarding the history of tea. The introduction, cultivation, and making of tea, together with the uses of tea, its friends and foes, and tea as a source of revenue, form the headings and topics of Mr. Reade's chapters. That old gossip Pepys, as the author reminds us, tells us that on the 25th September, 1660, he sent "for a cup of tea—a China drink," adds Pepys, "of which I had never drunk before." The year 1610 saw tea first imported into England. It then sold at ten guineas a pound; but in 1657 a large consignment fell into the hands of one Garway, a London merchant, who established a tea-house for the sale of the prepared beverage. The *Mercurius Politicus* of date 30th September, 1658, contains, among its other announcements, the intimation that the "Excellent, and by all physicians approved, China drink, called by the Chineans Teha, by other nations Tay, alias Tee, is sold at the Sultaness Head Coffee-house, in Sweating's Rents, by the Royal Exchange, London." In 1662 tea had become a fashionable beverage, thanks to royal patronage. Poets—Waller among them—wrote odes to tea; in 1755 the maid-servants, like their modern compeers, were found to be growing uncommonly fond of the new beverage; and about 1740, the price of tea had come down to 24s. per pound for "the finest Caper," to 16s. for Hyson, and to 7s. for Bohea. "Genteel company" drank tea and ate cakes every Sunday evening, at the "Mary-le-Bon Tea Gardens;" and thus we find that even 150 years ago or so, the popularity of "the drink of the Chineans," had become well assured.

Fig. 1.—Sifting Tea in China.

The chapter on "Tea-Cultivation" might, we think, have been extended with advantage. China and Japan produce 325 millions of pounds annually, against 52 millions of pounds produced by India. The leaves are first picked early in the season; a second gathering taking place when the foliage is at its best. The leaves are then placed on trays to dry; and are then roasted. Then the rolling-process is undergone, by way of ridding the leaves of moisture, after which they are returned to iron pans and roasted. After this process, the leaves are put aside for sifting (Fig. 1) and sorting, the sifting being carried on through sieves of various sizes. The dust is separated by

winnowing, and thereafter the leaves are parcelled out to form the various kinds of "green tea." In tea-tasting (Fig. 2) great care and delicacy is naturally exercised. The tea-taster is said to prepare his samples from a small quantity, about the weight of a new sixpence. This is infused for five minutes in 4 oz. of water in a covered pottery vessel. The tea-taster does not swallow the mixture, but rejects it after allowing his palate to imbibe its aroma.

One of the most interesting chapters of the work before us is that on "tea-meetings," and housewives are certain to read with avidity that on "How to make tea." The Chinese infuse tea by putting the leaves into a cup, and by pouring hot water on them; the infusion being drunk out of the cup. The Russians, as is well-known, flavour their tea with a slice of lemon. The best infusion is made with boiling water and with water which has just come to the boil. An inferior tea will not stand so long a period of infusion as a high-class tea; and probably about five minutes is a fair time for the extraction of the aromatic oil of the leaves.

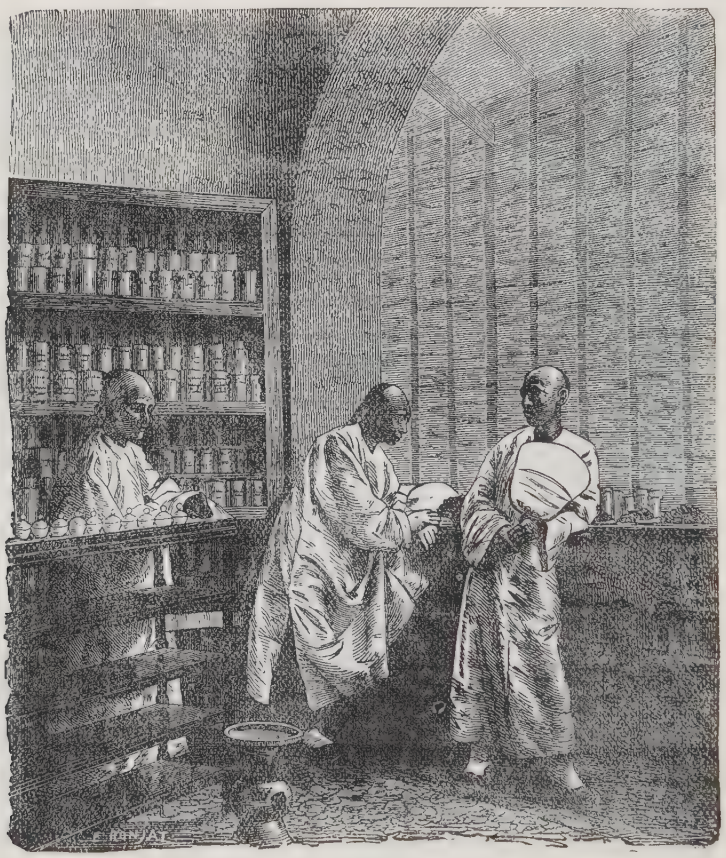

Fig. 2.—Tea-tasting in China.

The part of Mr. Reade's book which will certainly be regarded as least satisfactory by the health-reformer and physiologist is that wherein he deals with the uses of tea. He fails to make clear the well-known fact that tea is not a food in the true sense of the word, and that it lacks the characters of a true nutritive agent. As a stimulant, its powers are fairly set forth by our author, but in face of the fact that thousands depend in ignorance on tea for nourishment, we think Mr. Reade might have added to the utility of his book by strongly showing the folly of this practice of tea-drinking. None can afford to take tea who are not otherwise well nourished; and there is no greater delusion held at the present day than that which regards tea as a nutritive beverage merely because it is a stimulant and restorative. Mr. Reade quotes authorities in plenty in his chapter on "The Friends and Foes of Tea" to show that tea-drinking as commonly practised is injurious, but it is somewhat of a pity that in his preceding remarks he did not more fully emphasize this fact.

As a source of revenue, tea forms an important element in the estimates of our national income. In 1660 a tax of eightpence per gallon was passed on all tea made and sold in coffee-houses. In George II.'s reign, tea-adulteration was roundly condemned by Parliamentary enactment; while as recently as 1828 several "tea manufactories" were discovered, the fines recovered for such infringements of the law amounting in one case alone to £840. The really amazing fact regarding tea is its growth in popularity despite its taxation. In 1844, the duty on tea amounted to £4,524,193. In 1883, the duties were £4,230,341. The annual expenditure on tea, Mr. Reade tells us, amounts to about £11,000,000. The working-classes, he adds, contribute about £3,000,000 as their proportion of the tea-duties.

There can be no doubt that tea as a national beverage is a good one. The over-indulgence in tea is perhaps often inseparable from the social life and customs of the age; but with clearer appreciation of the true place of tea in the scale of diet, we should probably find the people less inclined to place that reliance on this beverage which, as we have seen, is the regret of the health-reformer. What is also demanded is a stricter supervision of the teas sold, and especially of those vended in the poorer districts of our towns and cities. Excessive tea-drinking is a serious evil; but it is vastly increased in its hurtful effects when an impure article is consumed.

Sanitary Appliances, Etc.

THE VALUE OF WOOD-WOOL.

Dr. Mitchell, of Culford, writes to a contemporary as follows:—"In January last I received a sample of wood-wool, as manufactured by Messrs. Essenger & Neuberger, accompanied by a printed circular, giving its chemical composition, and its combination with resinous matter and etheric oil, imparting to it powerful antiseptic properties. After carefully reading it over I determined to try its effects on one or two long-standing cases, which, to say the least, were both troublesome and unpleasant.

"My first case was that of J. W., aged 23 years, who was confined to her bed for the past four years, suffering from scrofula of the osseous system. There were numerous profuse discharging sores, scattered all over the body, chiefly around the right elbow and hip-joints. On January 15 I applied wood-wool in its loose state, without gauze, or any other substance, to prevent its coming in direct contact with the raw surface. Its absorbent and antiseptic properties were decidedly better than anything I had used. In ten days the discharges were comparatively little, the wounds assuming a healthy granular appearance, a new and healthy circulation seemed to establish itself, and after several pieces of bone came away from those places to which it had been applied, a rapidly healing process took place, and in seven weeks nothing was to be seen but the cicatrices.

"My second case was that of J. G., labourer, aged 42 years, suffering from varicose ulceration of the left leg, occupying the middle two-thirds. A great many remedies, including strapping, bandaging, rest, &c., had been used, both at home and in hospital, but without producing any permanent benefit. On Feb. 4 I applied wood-wool as described. In twenty-three days from that date the leg was quite sound, and my patient expressed himself as feeling better than he had for years. I have applied wood-wool to wounds both incised and lacerated, and find that their tendency to heal by the first intention is greater than under any other antiseptic treatment.

"I believe that its use will become general, both in hospital and private practice, for two reasons—First, it is cheap; second, it is clean and easily applied. In colliery and machinery wounds, where there is generally a great deal of suppuration and foul discharges in the process of healing, from the great difficulty in cleansing the parts, I should say it is the material which will give most satisfaction."

PLATEL'S SHERRY.

Mr. Platel, of Brixham, has sent us a sample of his light sherry, which, on analysis, we find to be a light and thoroughly pure wine, eminently adapted for those liable to suffer from acidity and dyspepsia. The sherries commonly consumed are fortified by crude alcohol, which is made in Spain from inferior materials. Hence the users of such wines are apt to reject all sherries, as tending to produce dyspeptic symptoms. Mr. Platel's sherry is a natural wine, unfortified, and well adapted for invalids, for mixing with soups, &c., and for ordinary use. As a light wine, capable of being prescribed with satisfaction by medical men, and of being used with safety by all, we can safely recommend this sherry to the notice of those who use such a form of alcohol.

Our Letter : Box

"Conference [maketh] a ready man."—*Bacon.*

LETTERS TO THE EDITOR.

HEALTH EXHIBITION.

Sir,—Would you allow me to suggest an important matter entirely overlooked in the Health Exhibition, namely, the appointment of a staff of commissionaires, ready to conduct round and explain all the various important exhibits to visitors, and remunerated according to a scale of charges. The printed handbooks only describe generally.*—I am, sir, your obedient servant, Augustus J. Harvey.

12, Landridge-road, Fulham.

* We fear Mr. Harvey's proposal, however good in theory, would scarcely be possible in practice. Where are we to find the educated guides and commissionaires who could fully explain all the matters of interest in the Exhibition? Exhibitors or their deputies are only too glad to explain to visitors the chief points in their exhibits.

HEALTHY BOOTS.

Sir,—I have read the already published parts of the article in Health, by Dr. Ellis, on "The Physiology of the Feet." Of course, I do not pretend to a knowledge of physiology—I know only the most rudimentary principles of that science; but still, there is something more than abstract science—viz., experimental science — required for successfully treating the foot question. The right cue to this question is suggested in a foot-note to the article. Let any one try the experiment which Dr. Ellis says is physiologically correct, of touching the ground with the toes first in walking, and they will find how practically impossible it is. Whether or not this arises from inherited false modes of walking I do not know. My observation and experience in connection with the wearing of boots is that the weight of the body is carried forward by a motion similar to that of a rocking-horse. Supposing the heel of the foot to be at the hind-leg of the toy, the foot rocks until the toes leave the ground at the fore-leg. This may not seem an elegant motion, but if we can imagine a small toy, this will not appear as altogether inappropriate. I am convinced that successful hygiene in relation to boots must take into account facts as they stand, along with a due regard to the social standard of taste. More or less rigid theories about the feet and the way boots should be made have rendered the present age at least a very difficult one in which to get a good fit—not because it is impossible to find easy boots, but because hygiene and ugliness, judged by the social taste, are synonymous. This opens the way for extremes. All that is required for the maximum of health is that the muscles of the foot shall move as freely within the boot as without it, and this can be secured with a fair amount of beauty. There are a few essentials, such as a moderately wide toe, with a moderately high heel, contrary to the general opinion. I contend that a boot should not be made the shape of the foot, but should be made the size of the foot, and the foot within the upper of the boot will readily accommodate itself to its needs, that is, if there are no angular restrictions in the shape of the upper to prevent it. The main lines of an ordinary foot are straight. It is a mistake to suppose that the sole of the boot is the shape of the foot, or that the sole of a boot should be the shape of the sole of the foot. What is necessary is that the sole and heel shall be in a uniform position beneath the centre of gravity. This can be secured by well-made right-and-left boots while new; but boots wear down, and in many cases wear down on one side. Now, as soon as this takes place, the hygienic property of the boot is gone, the muscles of the foot cannot move with perfect freedom, the sole and heel are not in uniform position to the weight of the body; and this must happen to any boots worn constantly upon the same feet to most persons. Hence the argument for my specialty—a straight boot, which, if regularly changed by the wearer, will preserve the all-essential uniformity till worn out; and I am confident no other way of making boots can possibly secure equal results.—Yours faithfully,

Jno. Branch.

87, Bethnal Green-road, London, July 25, 1884.

QUERIES AND ANSWERS.

GENERAL.

A. J. B.—The "Combe Lectures" are in the hands of the trustees of the late Mr. George Combe (not Coombe), as you spell it. As yet the lectures have been confined to Scotland.

C. E. P.—Try the first-named.

Algoa.—What you name does not lie within the province of Health. Try a trade journal.

Attention.—The *pleura* is the lining membrane of the chest. The *peritoneum* lines the abdominal cavity.

G. B.—A few persons have tried the system in our experience, but (as might have been expected) their opinions vary; we cannot say more.

Alexander Frew.—There is no separate intermaxillary bone.

Ellen T.—A winter's reading would certainly prepare you for the Science and Art Examination next May.

P. H.—Any chemist will supply you, or try any of the wholesale houses.

Toad.—Read the essay on "Zoological Fables" in Dr. Wilson's "Leisure Time Studies" for a full account of the "frog in the solid rock" stories.

Tricycle Replies.—Allan B. Over-exertion merely; rest is your cure.—Would-be Tricyclist. Gentle tricycling (with great care against chills) would do no harm to the lad. The exercise should cease on the first sign of any weakness; but gentle exercise on the tricycle in warm days would be decidedly advantageous.—Axle. The "Rover" is a first-class machine of the rear-steering type. See our advertising columns.—Green Hand. The Crypto-

Dynamic gear or that of the Coventry Machinist's Company would be equally suitable for hill-climbing.—Antony. Under the circumstances, let your companion be chary of the "Sociable" as a means of exercise. She should be content with simple walking exercise, for a time at least.—Preston. The machine you name is a trustworthy one; have it "geared" to suit you.—Two Sports. The hernia is against you tricycling. Don't attempt it till you are free from all the symptoms, and then only after consulting a surgeon. —Ethel G. You are over-doing tricycling—that is all. Don't blame the exercise for your foolishness in misapplying it.—George Innes. See our advertising columns for the "Burdess."

Patrick G.—Most students who intend qualifying for the license of the Royal College at Edinburgh attend the classes of the Medical School. Many University classes are also attended by those students. All the classes qualify. Total cost of fees from £90 to £100. Living is very moderate in Edinburgh for students.

J. D. R.—We have seen the book. It is not a quack production; and although it expresses views which are not approved of by the majority of the profession here (the author, we believe, is an American physician), it yet contains information for those capable of using such wisely.

Enquirer.—Your want of success, we imagine, arose from the length of time the stain had been on the carpet. As marking-inks are made from many different substances, no one method will take out the stains. Calcium chloride is chloride of lime.

T. Read.—Your space being so limited, you had better get a Coventry Rotary. You can buy by instalments of Goy, 21, Leadenhall-street; or Smith & Davis, 6, New Broad-street, E.C.; or Dearlove, 14, Ryder-street, N. There are several good Folders, Stassens, Singers, Coventry Machinists, and Markhams all being good. Poor as you say you are, do not get a low-priced machine; they are *not* cheap. A second-hand good one would be far better.

SANITARY.

Abacus.—Try Parke's "Hygiene" and Wilson's "Handbook."

E. C.—About 13 per cent. and 20 per cent. respectively.

A. G. P.—Try Calvert's "Carbolic Vaporiser" or the "Sanitas Vaporiser."

Eager.—No doubt a "bacillus." See the papers on "Disease Germs" now appearing in Health.

Inspector G.—Your action was highly commendable.

Teb.—Disinfection of rags by boiling in water for two hours under a pressure of 50 lb. per square inch, or for four hours without pressure, is a method of rendering them safe for use.

Alexander Caird.—Moule's earth-closets are the best. 5a, Garrick-street, Covent-garden, London.

C. A. N.—Probably the taste was due to metallic impurities.

W. B.—The probability is, the water is too hard for drinking purposes. Has it ever caused diarrhœa? You might adopt a process of softening the water.

MEDICAL.

Tradesman.—Continue to sponge the parts with cold water in which a few boracic acid crystals have been dissolved. No medicine is of service in such a complaint. If it troubles you much, see a surgeon regarding a simple operation which may be performed. Wear a suspensory bandage, and rest as much as possible.

Foxglove.—Stop former treatment, and give the lime-powders recommended to "T. H." in Health No. 64 a trial. Of course, your digestion must be looked to carefully.

Eva.—See article on "Bathing" in No. 7 Health, in which full instructions and advice is given regarding bathing. A person in good health may certainly bathe every day with advantage. Ask your friends for evidence of their "alternate" day theory.

J. N.—Give the patient fifteen drops *Fer Bravais* in water thrice daily, between meals. Try what change of air will do, and apply carbolated Vaseline to the spots. If not better in a week or two, write again.

Anxious Inquirer (Plymouth).—See and follow advice given in article on Cascara Bark Cordial as a remedy for constipation in Health No. 63, page 165. Eat fruits and vegetables as a regular part of your diet, sleep on a hard mattress, avoid fluids late at night, and use cold sponging each morning. Your disordered digestion is at the root of your troubles.

Blossom.—See advice to "Foxglove" above in respect of a trial of the lime-powders. See to your digestion, rest after meals, and avoid all stimulating and rich foods. A little Æsculap Water occasionally in the mornings will do no harm.

Maud.—Usually an accompaniment of indigestion. Take a little Pepsine with the food for a time, and use Æsculap Water as directed above to "Blossom." If not bettered, write again.

R. W. J.—(In future, please, write in ink. Your pencilled letter is highly indistinct.) We do not think the matter should trouble you, as you say there is no irritation or pain. Try applying a little Hazeline twice or thrice daily to the part. See article entitled, "A Valuable Remedy," Health, No. 63, for a cure for constipation. This latter condition is one to which your present and former troubles were no doubt due.

Student.—We presume you mean that the sebaceous follicles of the skin (which are normal parts of the skin) have become loaded with their secretion. This constitutes acne. Press out the matter from the follicles, wash with Pears' Soap and tepid water, sponge the skin thereafter with toilet vinegar, and use brisk friction with a hard towel.

Thoughtful.—Eat fruits and vegetables as a regular part of your diet, and especially take more open-air exercise. For the pimples, use the lime powders above recommended to "Foxglove." Bathing will do no harm if you avoid chills. Deficient skin action is quite common in people who are too sedentary in their habits.

J. A. N.—1. Take the tonic recommended to "Dentos," in No. 67 Health. 2. No; not possible. 3. Yes.

Alex. Wheeler.—See and follow advice to "Outis," in last number of Health.

Grange.—1. Not important. 2. Result of over-exertion. 3. The tonic above named in reply to "J. A. N." Certainly.

J. W. (Glasgow).—You fell into the hands of a most notorious London quack, whose "Restorer" is as patent a sham as ever gulled the public. His ways are dark and his tricks are vain, and his charges, as you know, high. Be wiser in future. The phial of his valuable medicine (?) you send is a simple harmless vegetable tonic, nothing more. We recommend you to cease worrying yourself, as there is really no cause for anxiety. Go for a change of air down the Clyde, rest as much as possible, and take the tonic recommended to "Dentos" in Health No. 67. Let us hear how you are after a trial of this advice.

A. X. Z.—We advise you to remove the hairs from the bald patch and from its neighbourhood as well, and to apply a little carbolated Vaseline to the part at night for a time, keeping the part thoroughly clean by washing each morning,

Cymro.—See reply to "Observer" in Health No. 68. If you had read Dr. Craig's article with care, you would have seen the doses are fully given (page 166). Diluted with water, simply. See directions on bottle. Doses may be taken between meals. 2. We have never heard of the electrical appliances you name. Pulvermacher's Belt and Harness' Electric Battery Belt are both genuine. 3. A good nerve-tonic decidedly. No tonic should be taken for a lengthened period; such is not the use and purport of a tonic. 4. Yes; good stout would be beneficial; eat plenty of fatty food. Try cod-liver oil emulsion. 5. A quack establishment —be "positive" in having nothing whatever to do with the firm.

Climate.—Kew, Putney, or Richmond might suit you, as being somewhat mild and inclined to be moist. Hampton Court might also suit you.

C. H. W.—There is no work on the topic we know of, apart from professional treatises. Any manual of medical treatment should give you full directions.

H. Victor.—Look to your digestion, and take the lime-powders recommended to "T. H." in Health No. 64. Take 15 drops *Fer Bravais* in water, thrice daily.

T. J. Johnson.—Try the effect of applying Rowlands' Macassar Oil to the part for a time, each night, by way of stimulating the growth of the hair. If not successful, after a fair trial, write again.

P. J. S. M.—Your symptoms are certainly those of acute dyspepsia, or rather of painful digestion. We advise you to rest after meals, to try Lactopeptine after food, and to take in the mornings, for some time, a little Æsculap Water. Food to be light (milk, soups, puddings, &c.) and very little *solid* food to be taken for a time. Tea and coffee to be avoided. Let us hear how you are after a trial of this advice.

Electricity.—Yes; all very well for you to say "Don't tell me it's fancy," but what you do complain of is often perfectly natural; unless, indeed, persistently continuous. Our advice to you is embodied in that given to "Outis" in Health No. 68. As regards the electrical appliance, these frequently do good in such cases, but, like other remedies, they may sometimes fail. The "Electric Battery Belt" (advertised in Health) is the belt we have tested and found genuine. In purchasing any electric appliances you must be cautious. The above belt and Pulvermacher's are those we know to be genuine.

J. W. Paton.—Wash the head twice weekly with Pears' Soap and tepid water, using brisk friction thereafter. Apply the following as a lotion to be well rubbed into the roots night and morning:—Balsam of Tolu, two drachms; oil of rosemary, twenty drops; tincture of cantharides, one drachm; castor oil, half an ounce; prepared lard, an ounce and a half.

Health Reader.—We do not give the names of medical practitioners in Health. We can send you addresses on receipt of

[*Continued on page 272.*

LINCOLNSHIRE FEATHER BEDS.

Direct from Boston, Lincolnshire. Great Reduction in price to 9d. per lb.

MESSRS. H. NEWHAM & Co. are now offering their celebrated Feather Beds at the following greatly reduced prices:—

No. 1.—SINGLE BED, BOLSTER, and PILLOW, 6ft. 3in. by 3ft. 6in., weighing 40 lb. ... ... 30s. 0d.

No. 2.—DOUBLE BED, BOLSTER, and TWO PILLOWS, 6ft. 6in. by 4ft. 6in., 50 lb. ... ... 37s. 6d.

No. 3.—DOUBLE BED, BOLSTER, and TWO PILLOWS, 6ft. 6in. by 4ft. 6in., 55 lb. ... ... 41s. 3d.

No. 4.—EXTRA SIZED BED, BOLSTER, and TWO PILLOWS, 6ft. 6in. by 5ft., 65 lb. ... ... 48s. 9d.

Warranted new and Sweet. Any sized Bed only 9d. per lb., including Feathers, in white (bordered) Tick, making, packing, wrapper, and carriage paid to any station in the United Kingdom. Superior Beds, splendid Feathers, Linen Tick, 1s. per lb. Samples of Feathers and Ticks, Price-lists, &c., post free.

CAUTION.—We do not buy to sell again as others do, but sell direct from our own Factory. All Orders must be accompanied by Cheque or P.O.O. We have no London Agent. All goods are sent direct from

MESSRS. H. NEWHAM & CO.
FEATHER PURIFIERS,
BOSTON, LINCOLNSHIRE,

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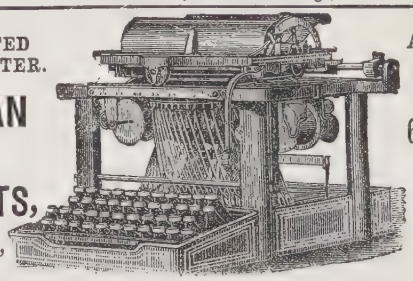

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stamped directed envelope. In your case we should recommend you to look to your food. See that your digestion is in order; and take plenty of out-door exercise. You are suffering from want of such exercise. As medicine, take the tonic recommended to "Dentos," in Health No. 67, and let us hear how you are after a fair trial of this advice.

M. A.—See and follow advice to "Outis" in Health No. 68.

Byng.—We do not think you need have any fear. In the first place, you have no evidence that there existed any infectious disease—therefore, why trouble yourself with fear of infection? Secondly, you have had, since, not a sign of infection or disease-development. Exercise your common sense, and cease worrying yourself.

B. Cossar.—Advice to "M. A." above applies to your case. Don't be nervous. No cause for alarm.

John Smith.—Take, for a time, a tonic such as that recommended to "Outis" in Health No. 68. Such weakness often proceeds from a general lowness of the system. If not bettered, write again.

An Anxious One.—Try the effect of applying pure Vaseline to the parts each night. Practise this for a week or two, and let us hear the result. Avoid chills, and get the skin to act well through hot baths twice a week. Take, also, a little Æsculap Water occasionally in the mornings on rising.

Eva.—1. See advice to "An Anxious One" above. Glad to assist you again, if you do not find this simple treatment suit you. 2. The water-supply of the town you name is regarded as thoroughly pure and wholesome. We have heard no complaints regarding it. Your test showed it contained no organic matter.

Colporteur.—Let your food be light—to consist chiefly of soups milk, puddings, &c., for a time. Rest after each meal is necessary in your case. Take pepsine with your food, and avoid tea and coffee. Look to your teeth, and use camphorated chalk as a dentifrice. A little ordinary care over your food and habits should suffice to cure you.

J. Kirk.—Bathing in fresh water, if pursued in moderation, can do no harm. If it did, what would happen to all who take a cold bath in the morning? You must bathe, of course, at proper times, and not too frequently.

Malvent.—We do not think your ailment likely to be benefited by a belt. It is quite evident your close and confined occupation and want of exercise tell on your health. You should arrange for more open-air exercise. Try a tricycle, if you can afford the expense, or obtain one on loan. Attend to your food as before, and avoid tea and coffee; but it is exercise you want. Close confinement from nine to six daily is enough, in time, to cause all your ailments.

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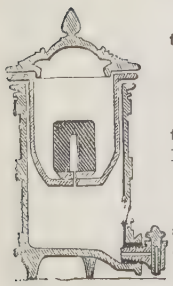

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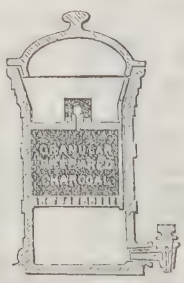

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HEALTH

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, AUG.* 8, 1884.

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Notes by the Way

"Health is the foundation of all our physical happiness."—*Herder.*

THAT the "cholera-scare" extends to our own land is being realised in a thoroughly practical fashion by foreign hotel-keepers, by railway companies whose lines carry us towards continental resorts, and by tourist-agents interested in the conveyance of parties of Britons through the sights of Europe. There is great grumbling at the falling-off of receipts, and at the loss of the traffic, which, each year, it has been the lot of railways and steamboats to convey in an increasing ratio, to the continent. We can hardly blame people who, in search of health, "avoid the very appearance of evil," as the copy-book maxim has it, in the shape of reputed illness. The consideration that our native resorts will this year reap the benefit of the cholera-scare abroad, is, in itself, a comforting thought. As a rule, in these days of cheap locomotion and inducements to foreign travel, we scarcely appreciate the beauties and health-giving powers of our own land. From a national point of view, the cholera-scare, therefore, is not without its advantages. For one thing, many persons who mistake the function and manner of the true holiday, and who utilise their time by flying from place to place abroad, will be compelled to enjoy a quieter repose at home. Such persons will be greatly the better for the rest, and home trade will be none the worse for the increased expenditure of money which holidaying in our own country must induce. So, after all, the proverbial "ill wind" has its cheerful side—even in the matter of a cholera-visitation abroad.

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THE programme of lectures at the Health Exhibition last week was very full and varied. The conference on "School Hygiene" was eminently successful, while Mr. Wigner's lecture on "Milk," Dr. Darbishire's discourse on "Recreation," Mr. Eassie's lecture on "Healthy Houses," and that of Mr. Cross on "Soap" dealt respectively with topics of practical interest to all classes. Mr. Lakeman's lecture on "Health in Workshops" was also a theme deserving the study of the toilers and moilers who are anxious to secure length of days through well-ventilated shops, and through the repression of the nuisances, dusts, and vapours incidental to the pursuit of many trades. It is satisfactory to point out that those who have had no opportunity of attending these lectures will find the substance of the lecturers' views embodied in the "Handbooks" issued by the Exhibition authorities. Three of these "Handbooks" are reviewed in our present number.

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THE lecture which must have proved of the highest interest to mothers and nurses was that of Dr. Edward Owen, on "The Rearing of Hand-fed Infants." Dr. West (founder of the Hospital for Sick Children) occupied the chair, and presided at a lecture which was marked by clear, incisive statements, and by plain teaching regarding the causes of infant mortality.

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HERE are two pungent passages from the lecture in question:—"On no account should the infant be taken to sleep in its mother's bed; the Coroner for Central Middlesex holds one hundred and twenty inquests every year on infants who have thus perished. A well-managed babe should close its eyes as certainly as does a mechanical wax doll, as soon as it is laid down for sleep. Cradle-songs and lullabys should henceforth be left entirely to poets and musicians, to whom they seem indispensable. At any rate, the small hours of the night and the unhappy husband need never be disturbed by them. It was, after all, only a home-sick sugar-planter who cried 'Rock me to sleep, mother'! Probably, if an infant could speak, he would never be heard repeating the request."

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As regards condensed milk and its use, the Lecturer failed to see how cow's milk, which had been evaporated almost to dryness, mixed with much sugar to prevent its going bad, soldered down in tin pots, and stored for an indefinite time in an oil and colour shop, could form better support for infants than the fresh cow's milk just prepared as he advised. For babies, cow's milk, which should be always fresh, should be mixed with an equal, or even greater bulk of warm water, in which a lump of white sugar and a pinch of salt has been dissolved. The fresh milk is an excellent anti-scorbutic or scurvy preventive, and so is always needed.

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THE prevalent hot weather is certain to bring in its train cases of sunstroke. Already more than one case has been reported, and a fatal case is announced from Rye, where a man engaged in sawing timber expired from the effects of the "heat-stroke," as the affection should more properly be termed. Removal to a cool, shaded place, the pouring of cold water on the head and back of the neck in a stream—if from a pump, so much the better—and the removal of all tight clothing from the neck and chest, are the means of help indicated for use before the doctor comes. Out-door workers, and all exposed to the sun, should protect the back of the head and neck especially from the heat. The common country custom of placing a cool cabbage-leaf under the hat, so as to protect the back of the neck, is a simple but physiologically effective plan. Our hatters might with advantage devise a neat, light holiday hat provided with such protection. Here is a hint for the trade.

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IN the current number of his journal, "The Asclepiad," Dr. B. W. Richardson gives an interesting account of the means he has invented for securing painless death in the case of the lower animals. What Dr. Richardson calls his "lethal chamber" is in operation at the Dog's Home at Battersea, London, where lost dogs, for which owners have not been found, require to be periodically destroyed. This chamber is air-tight, built of wood, with double walls, con-

taining a layer of sawdust between them so as to maintain an equable temperature. The box holds two hundred feet of the "lethal air," consisting of carbonic oxide gas, which takes up in its way into the compartment a current of chloroform containing bisulphide of carbon. Before use the gas is diffused into the chamber for three hours at a temperature of 75° F.

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The animals to be killed are placed in a cage, which is then run into the chamber thus prepared. Immersed in the vapours of the compartment, death rapidly ensues. It is, says Dr. Richardson, the easiest death it is possible to devise. "First sleep, then death-sleep, then death." Five hundred dogs have in this way been painlessly destroyed. When we think of the often brutal way in which the lower creation is put out of pain and tribulation, we cannot feel too grateful to Dr. Richardson for his successful solution of a problem in which mercy to the animal, is combined with the necessity for robbing it of existence.

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It is interesting to note that the vapour of the chamber above described is preservative and antiseptic as well as death-producing. The dead animals can thus be kept and preserved in this chamber, without nuisance being created, until they can be removed. We heartily wish that at every police-station some handy apparatus could be kept, whereby the horse which has broken its leg or met with other severe accident, could be readily put out of pain. Any one who has been a witness of the deplorable attempts to kill a horse which has succumbed in the public street, will heartily wish that Dr. Richardson may direct his attention to the construction of a handy apparatus, which, say in the form of a mask, could be slipped over the horse's head, and thus mercifully and painlessly end its sufferings.

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The returns of the Commissioner of Inland Revenue show that in Scotland the duty on spirits consumed as beverage increased by 3¼ per cent., as compared with that of the previous year. The increase amounted to 212,233 gallons. This fact must be taken in connection with another—namely, that elsewhere the consumption of spirituous liquors per head of the population still shows a diminution.

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In Scotland, we learn, there are only some thirty-six schools in which cookery is taught to the senior girls. The Committee of Council on Education, it is gratifying to hear, are making arrangements to increase the number of schools in which this highly essential branch of education is to be taught. We thoroughly agree with the expression of opinion that "after the three elementary subjects and sewing, no subject is of such importance for the class of girls who attend our schools; and lessons in it, if properly given, will be found to be not only of practical use, but to have great effect in awakening the interest and intelligence of the children."

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This is good news. What more effectual in fitting girls to become good wives and mothers, or handy helps to parents, than an education in the elements of cookery and domestic economy? The true hope of the happy home, not of the working folks merely, but of the middle classes as well, consists in the mistress of the home being well fitted to rule her household wisely and economically. Better far teach our girls cookery and domestic economy, than attempt the so-called "higher education," where no future need can call for such culture.

Original Essays

"Life is not to live, but to be well."—*Martial.*

A CHAT ABOUT DISEASE-GERMS.*

By Dr. Andrew Wilson.

PART III.

The disease known as "ague" or "intermittent fever" was very familiar to ancient observers, who attributed its origin, rightly enough, to the inhalation of the vapours or "influences" of marshes and swamps. We know that as marshes are drained and swamps abolished, ague disappears from our midst. Formerly a common disease in England, ague is now practically unknown amongst us, and a fresh testimony to the great fact that man is largely the minister of his own fortunes and misfortunes in the way of health, is thus afforded by the abolition of ague through human progress in sanitary arts. Another disease, strictly within the art of man to limit, through attention to sanitary conditions, is the "relapsing fever" or "famine fever," which marks periods of want and privation. This disease has usually appeared contemporaneously with outbreaks of typhus fever. The relapsing fever, in fact, seems often to herald the more deadly ailment. It is quite distinct from typhus fever; and as early as 1817 its identity was clearly enough discerned by physicians. A remarkable epidemic of this fever raged in Scotland in 1843, and reappeared in 1846. Between the last-named year and 1853 relapsing fever appeared to be a more or less constant guest in our midst; but at the latter date it seemed to vanish away as mysteriously as it came. For fourteen years no cases were reported; but in 1868 the affection reappeared in London and elsewhere. Since 1871, however, no epidemic of this disease has been placed on record.

As a disease, relapsing fever is very infectious. It appears where filth, uncleanliness, overcrowding, and want prevail—conditions, these, which from the common soil in which typhus fever and other serious ailments may be said to breed. From its appearance in times of privation, commercial depression, and want of food, the name of "famine fever" was given to this ailment. It has an apparently sudden onset; it affects liver and spleen notably, and, in this latter character, seems allied to ague. On the seventh day of the attack, the crisis usually appears, but relapses are extremely common.

A notable point in the history of the disease to which we have thus specially alluded, was reached when Lebert, Obermeyer, and other observers announced the fact that in the blood of patients suffering from relapsing fever might be found numbers of curious thread-like, spiral bodies, capable of actively moving, and known as *Spirochætæ* (Fig. 1). These organisms are found in the blood at the beginning of the attack, and are believed to constitute the true and veritable source of the disease. This discovery was, in fact, one of the herald-signs of the germ theory of disease; and since the period of its first

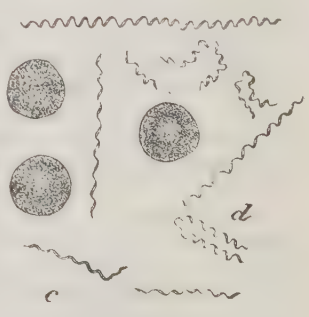


Fig. 1.—The germ (*Spirochæta Obermeiri*) which causes Relapsing Fever and probably Ague (highly magnified). The round bodies in the figure are blood-corpuscles.

* "A Synopsis of the Bacteria and Yeast-Fungi." By W. B. Grove, B.A. (London: Chatto & Windus. 1884.)

mention, the history of the Spirochæta family—which is believed likewise to be the cause of ague—has been pretty fully worked out. In this group, as the illustration shows, the threads possess a large number of close spiral turns. They swim backwards and forwards, rotating around their long axes, and appear to be capable of bending themselves in varied ways and fashions.

In bog water is found a *Spirochæta* (*S. plicatilis*) which has blunted ends. With this species, that (Fig. 1) found in the blood of the relapsing fever patient is nearly identical. One observer goes so far as to say that change of habitat may account for the differences between the two species which the microscope discloses. Should this view be accepted as likely or correct, we may understand how, when received into the body from the marshy waters of its district, the *plicatilis* form should exhibit modification, and appear before us as the *Obermeiri* form (Fig. 1) of the disease.

Other members of this curious family occur in the secretions of the teeth (*S. Cohnii*) and in sea-water (*S. gigantea*). The latter species is large when compared with those already mentioned. It is also an interesting fact that, in the intervals of the fever, the *Spirochætæ* seem to disappear. When a relapse occurs, they are again found swarming in the blood. The relations between cause and effect, seem here too close to escape even casual notice or recognition.

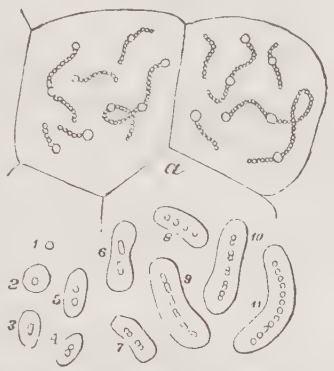


Fig. 2.—*Leuconostoc meserentoides.*

A highly interesting addition to the list of "germs" is that found in the group known as the *Leuconostoc* family. Here the cells are colourless, united in chains, which are in turn enclosed in thick, jelly-like sheaths. (Fig. 2 *a*.)

The *spores*, or reproductive bodies, are seen in the shape of swellings, borne either at the end (Fig. 2 *a*) or middle of the chains of cells. The development of the spore to form the mature organism is shown (1—11) in the lower part of Fig. 2. These curious organisms seem to exhibit a strong likeness to the "yeast plants" already described in the effect of their growth and action. The *Leuconostoc* appears in beet-root sugar, and on the bags, vessels, and other receptacles employed in the manufacture of that commodity. These "germs" can also be cultivated on macerated carrots and dates, in the juice of these vegetables and of beet; while they have been found to occur spontaneously in the pap of turnips and in molasses.

The French style these germs "gomme de sucrerie," while the German name of "froslaich," or "frog's-spawn," indicates the chief aspect of the action of these minute plants. They render acid the liquid in which they develope, and thus destroy the manufactured products which have received them.

As a final example of the germ-families to which we have been directing attention, the *Micrococcus prodigiosus* (Fig. 3) may be selected. This latter is the organism which produces the peculiar appearance on bread, potatoes, white of egg, paste, &c., known as "blood-rain," &c. These substances at first show little red points, which grow into regular spots, and finally end as blood-red patches. The little cells (Fig. 3) each average the 25,400th of an inch in diameter. They are colourless, but secrete the red colour in the mucus amid which they live. The appearance of these little cells, *en masse*, has given rise to much superstitious horror; the red appearance being provocative of dread in the minds of ignorant observers.

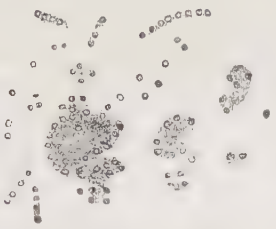


Fig. 3.—*Micrococcus prodigiosus* (largely magnified).

In our review of Mr. Grove's interesting book, we have been enabled to take a cursory survey of a great field of inquiry which is month by month widening out its boundaries, and apparently threatening to absorb within its limits, a large part of medical practice. There can be no doubt that "the germ theory of disease" is destined to play an important part in the further elucidation of the nature of the ailments which afflict our race. Each successive discovery in the matter of disease-causation, seems but to enlarge the sphere in which these humble organisms reign supreme. It may not be amiss to point out that it is to workers in the fields of lower life—to naturalists and biologists—that we mainly owe our information respecting the germs which cause disease. A study in botany and geology, apparently of little interest to the world at large, has thus come to form the foundations of the modern treatment of disease, and of the science on which are based the hopes of finally exterminating infectious ailments at large.

THE TRICYCLE, AND ITS RELATIONS TO HEALTH.

By Sigma Smith.

THE CHOICE OF A MACHINE (*Continued*).

As a rule, the tricycles that steer by means of a wheel behind are not to be recommended at all; but there are some two or three that are so admirably made and fitted that they can almost be said to vie with the front-steerers in all the essential features, and there can be little doubt that as hill-climbers the rear-steerer is quite as good if not better than its rival the front-steerer. The best machines of the rear-steering class are the Cheylesmore (Coventry Machinist Co.), the Rover (Starley & Sutton), and the Rucker, made by Rucker & Co., Letchford's Buildings, Bethnal Green.

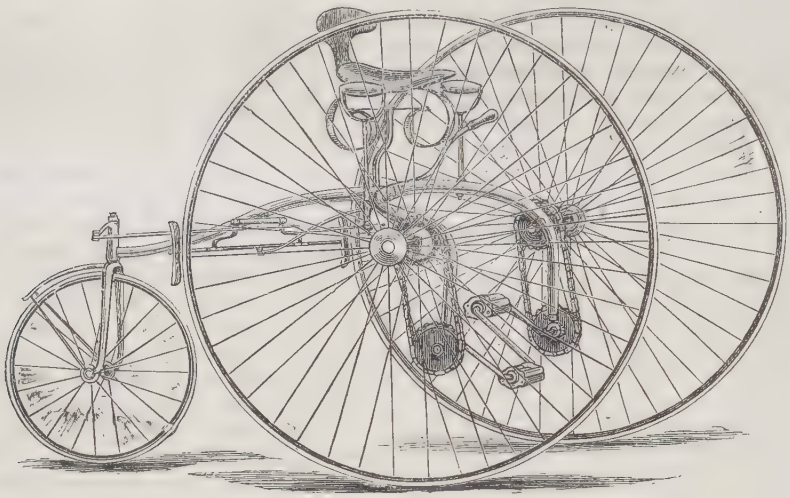
The Cheylesmore is world-renowned, and until this year, when the Coventry Machinists Co. have devoted special attention to their Imperial Club (a front-steerer), it was the mainstay in the shape of tricycles of that important company, and thousands upon thousands of these machines have been made and sold to riders in all parts of the world. It was one of these machines that H.R.H. the Prince of Wales bought for his own use, and Henry Irving

Scott's Midlothian Oat-Flour.—There is no preparation which can be assimilated with greater facility than such a flour as this. Those who suffer from indigestion might substitute for their ordinary breakfast materials this flour, prepared according to the recipe given by Messrs. Scott and printed on the tins.—Ed Health.—[Advt.]

The "Boncontour" Stay-Belt and other Orthopædic Apparatus, made by K. R. Schramm, Orthopædic Mechanician, 64, Belmont-street, Chalk Farm-road, London, N.W.—[Advt.]

Swimming and Ling's Swedish Exercises.—Mrs. Florence Williams, Certificated Teacher. Schools and private families attended.—The Crown Baths, Kennington Oval, S.E.—[Advt.]

also rides one, besides numbers of other persons of note. The brake, as now fitted to the machine, is a "swinging lever," and as it is applied to both wheels it is most powerful and effective, and will stop the machine dead upon almost any hill, no matter how steep it may be. The company have also adapted a "sliding-seat," by means of which the rider's weight can be thrown backward or forward at will by the mere turn of a lever, and this answers a very useful purpose in throwing the rider's weight upon the steering-wheel when descending hills, the effect being to very materially steady the machine, even at a high speed. It is an open-fronted machine, very easy to descend from, and is driven with two chains, the turning being governed by a very ingenious "clutch," fitted in a box on either side. A light form of Cheylesmore is specially made for ladies' use, fitted with dress-guards.



The Cheylesmore Tricycle.

The Rucker is very much like the Cheylesmore in its chief characteristics, and is also a reliable, soundly-constructed machine.

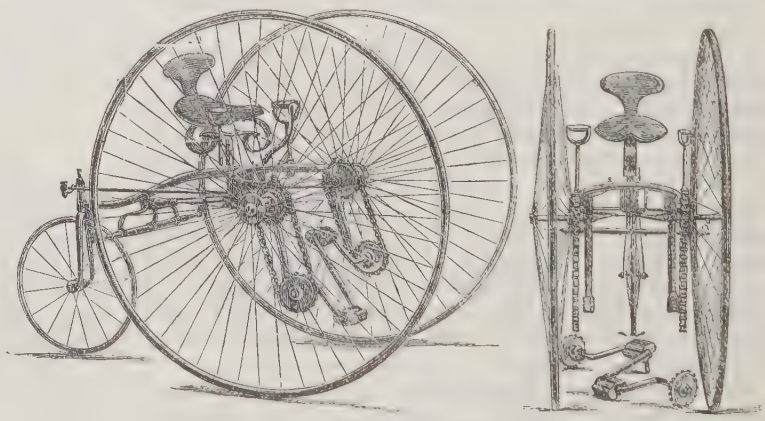
The Sterling (Burdess & Co.) has also many good points, and has a specially comfortable seat arrangement.

Folding Tricycles.

The question of ingress and egress is one that serves as a deterrent to many would-be riders whose front gates are too narrow to allow of an ordinary tricycle being passed through, the present form of gate having been fixed upon before the practice of riding tricycles assumed such proportions. There are indications on the part of the more sensible and far-seeing of the builders of new houses showing that the desirability of fitting a wider gateway is receiving attention, and no doubt ere long the standard width of even the ordinary gates will be made about 44 in. instead of the present size, which, in the ordinary way, is just about a couple of inches too narrow to admit a machine, the width of which, as a rule, runs about 38 in., 40 in., or 41 in. on the outside of the hubs. To overcome this difficulty, and also to allow a full-sized machine to be led into the house, and deposited there so as to take up the minimum of space, folders have been invented, so contrived as by a few simple movements to collapse to a width of about 22 in. or so.

The Cheylesmore is thus adapted, and the folding can

The Rover Tricycle.



The Cheylesmore Folder (open and closed).

The Rover is a speciality of Messrs. Starley & Sutton, and its merits have been highly extolled. It is built something in the style of the Humber type, but steers by a ratchet-rod, which directs the course of the hind wheel, and concurrently the whole machine. The arrangement is such that a great part of the rider's weight is balanced upon the hind steering wheel, which gives the maximum of steadiness to the steering. From its construction this machine is not suitable for ladies. It is an excellent hill-climber, and in good hands is a fast-running machine, possessing numerous good qualities, not the least of which

be effected in a few moments, when the machine is reduced in width to about 26 inches, which of course enables it to be led through any doorway.

Markham, of the Edgware-road, has also a very ingeniously-contrived Folder, of the front-steering central-driving type. Messrs. Singer, and also Messrs. Stassen, of Stoke Newington, have brought out machines which fold up by telescoping the axle. The former is a Humber type machine The Traveller, and Stassen's is a front-steering central-driver. Both are good, and when fitted ready for riding are as rigid and as safe as the ordinary machines. Of course the advantage of being able to collapse a machine for convenience of passage and stowage is one that speaks for itself in the case of dwellers in towns, where the gates and the yards are alike narrow and circumscribed.

Personal Health

"Be timely wise;
With health all taste of pleasure flies."—*Gay.*

SEA-SICKNESS.

Dr. Gresswell writes as follows in the *British Medical Journal*:—

This complaint varies greatly in degree. Some never suffer from it; they are, however, in a decidedly small minority; some suffer severely at first, but quickly acquire toleration; others apparently never succeed in wholly overcoming the effects of the movement of a ship at sea. We may mention that it occurs in some birds, and is known in many quadrupeds. Most children in health quickly acquire toleration. Women suffer, perhaps, more generally than men, and it is rare to meet a woman who, though a great traveller by sea, does not suffer severely when a vessel is freely pitching. It is common, also, to meet men who, though great sea-travellers, suffer somewhat when a vessel freely pitches; the customary pipe is not taken, the appetite is in abeyance, and there is a decided preference for the recumbent posture. The suffering is most marked when there are both pitching and rolling, or, as some say, "wriggling." The voyager generally quickly becomes adapted to rolling when occurring alone, but not so readily to pitching, which is the movement that longest retains its influence; the symptoms also are the more severe the greater the angle through which the vessel pitches, so that, for instance, the occupants of stern cabins suffer more than those of cabins amidship; and, moreover, they are more severe when standing than when sitting or lying. Pitching would, by virtue of the law of inertia, cause sudden changes in the amount of fluid contained within the cranium. During the descent there would be some addition to the intracranial fluid-pressure (or that inside the skull), and during the ascent some reduction of it. In rolling, again, similar alternations of pressure doubtless occur, but they would not be so great, for a ship generally rolls through a much smaller angle than that through which it can pitch.

Thinking that sudden changes of intracranial fluid-pressure (or that within the skull) had to do with the symptoms of sea-sickness, I tried the administration of ergot and digitalis, hoping, by raising the blood-pressure, to reduce the effect of pitching upon the intracranial fluid. I gave these drugs freely to as many as a hundred and ninety persons suffering from sea-sickness; and, in very many cases, they apparently acted remarkably well, some (especially lads) requiring no more than one or two doses. I should say that chloroform also was almost always given.

The peculiar sensation in the chest and abdomen when swinging, or at the sudden start or pull up of a railway carriage, may be attributable to change of mutual pressure of parts within the abdomen and chest. Swinging often, indeed, causes sickness; but the movement of swinging differs greatly from that which is undergone in a ship when freely pitching. In pitching, there may be such sudden change from ascent to descent, that one feels as if left in the air; and, again, such sudden change from descent to ascent, that one feels as if about to pass through the deck. And it is, I think, just this fact of sudden interruption of the movement that constitutes the difficulty to be overcome on a ship; moreover, it is just at these times, and often only at these times, that great sea-travellers experience nausea.

This view of the causation of sea-sickness may be objected to on the ground that quadrupeds suffer from it. Pitching would, however, act on the intracranial pressure of the quadruped, when standing, in the same direction as, though to a less degree than, it would in the case of man.

Whether, however, the explanation here advanced be correct or not, the drugs above-mentioned seemed to act so well as to justify, I have thought, these few remarks. It may be well to add that some irritants have a marked effect in checking, at any rate, the vomitting of sea-sickness; and of these, the most useful, perhaps, is tincture of capsicum; spiritus ammoniæ aromaticus also is of value.*

Speed of Thought.—Many people have noticed the remarkable quickness of thought in dreaming, how a long story, with many details, and extending over a great period of time, will flash through the mind in a few minutes, but they seldom have any means of even approximately measuring the quickness with which they sometimes dream. There is now going the rounds of the press a story purporting to tell the dream of a railway engineer, which, if true, affords a means of measurement, and the story itself has every appearance of being a genuine relation of experience. The engineer had been without sleep and on duty for many hours, and at last fell asleep on his post. Then he dreamed quite an elaborate story of an accident resulting from a confusion of train orders; how he studied over the words of the despatch, trying to make out their meaning; and then how, his train coming into collision with another, he was thrown into the air and dropped back into his seat in the cab with his hand on the throttle. At that instant consciousness returned, and he found that it was all a dream, and that, although his train was travelling at the rate of 45 miles an hour, it had gone only 250 ft. while the dream was passing through his mind, this distance being fixed by the position of the train with respect to the signal-lights on the line. This is the interesting part of the story, for if these measurements are approximately correct the dream occupied less than 4 secs. of time.

A Valuable Invention.—It is gratifying to learn that Mr. R. Adams, of 17, Blackman-street, London, S.E., whose fanlight-openers and silent door-springs are being extensively used, has received large orders for his Patent Reversible Window. The sashes, although they slide up and down in the usual way, can be instantly turned inside out, enabling anyone to clean each side of the glass with ease, while standing in the room.—[Advt.]

* [In an exceedingly troublesome case of sea-sickness we have seen the symptoms disappear on the administration of the Worcestershire Sauce, or Lea & Perrin. The sauce was administered in half-teaspoonful doses at intervals, and was afterwards given with bread.—Ed. H.]

Our Papers on Popular Science.

"Blessings on Science! When the Earth seemed old,
When Faith grew doting, and our reason cold,
'Twas she discovered that the world was young,
And taught a language to its lisping tongue."
—*Charles Mackay.*

TENTH PAPER.

HEAT.—V.

By Edward H. Riches, LL.D., F.R.A.S.

In our last paper, while touching upon certain facts in connection with the *conduction* of heat, we remarked that the different powers of receiving and conducting heat which are possessed by various substances account for what we commonly call *warmth* of the material used for any article of our clothing. And it is because the coverings of animals, such as hair, wool, feathers, are non-conducting mediums of heat, that in warm weather such coverings will not allow the heat from without to reach their bodies, and in cold weather the heat is prevented from escaping; and so it is with the case of warm-blooded animals which live in the water, such as whales and seals, there is always found to be beneath the surface of their skin what answers to the fur or feathers on animals—namely, a thick coating of fat, which is called "blubber," and it is this which, as a non-conductor of heat, keeps the cold from entering their bodies, and prevents, in like manner, the heat from escaping. We may also gather from the fact that air, possessing, as it does, non-conducting properties, its being retained to a certain extent within the fibres and nap of woollen garments, the warmth of the same is thereby increased; and, again, flannel being a non-conductor of heat, is suitable for wrapping round ice to prevent its quickly melting, and the walls of rooms where ice is kept should always be lined with straw, on account of its non-conducting properties.

In alluding above to the particles of air which are retained among the fibres and nap of woollen garments, it was remarked that air was a non-conductor; it certainly is a very bad conductor, for it is never made hot by the direct rays of the sun, and it never radiates heat. It has been previously remarked in our paper on ventilation that heated air rises, and so it is that the air which comes in contact with the surface of the earth becoming warm by such contact, ascends, and thus warms the air through which it passes in its ascent; and fresh air heated in the same way is always ascending, so that at last the volume of air is heated to a certain uniform temperature. We shall have occasion to allude to this point when, later on in a subsequent paper, we treat of the phenomenon of dew. And it may thus be seen that the air is rendered cold by the air above it becoming cold also, and the cold current of air agitates the whole mass by the wind created till the mass becomes uniformly cold.

It has been most clearly ascertained that air is a very bad conductor of heat, for, while water becomes scalding at 150 deg., air heated to a higher degree than that may come into contact with the skin without any serious results. If any one remain in a temperature of air heated to 52 deg. above boiling-point the contact of air with the skin may be borne, but it would be painful to put the fingers upon any coins placed, say, on the table; and, in fact, any metallic substance within the same temperature could not be touched. From this we gather that air must be a bad conductor. And, if the cook in the kitchen were only taught that air is a bad conductor of heat (as we have shown), and if it were explained to her *the reason* why, upon putting the broad end of the eggs she is about to boil for the breakfast-table to her tongue, some will be found to be warmer to the touch than others, and, further, if she were told that it is the *stale* eggs which feel warmer to the tongue than the *fresh* ones, we should not be so frequently disappointed as we are at having commenced our breakfast upon a stale egg instead of a fresh one. *The reason* why the stale egg will appear warmer is that the thick end contains a small quantity of air between the shell and the white, and as this white shrinks the longer the egg has been kept, the air confined will expand, and, of course, the more air there be within, the less heat will be drawn from the tongue which comes into contact with the shell. The cook might, with a little practice, soon learn to distinguish readily enough between a stale egg and a fresh one. The bark of trees is very slowly permeable by heat, and, just as it was shown with fur and hair in the case of animals, it is wonderfully adapted to secure for the tree the required temperature within. In a subsequent paper we shall have occasion to say something as to vegetable heat.

Transfusion of Blood in Consumption.—Transfusion as a cure for pulmonary consumption is being tried as an experiment in New York, with, it is stated, the most encouraging success. The first experiment was undertaken four months ago by an enthusiastic young surgeon, in the case of a man aged 23 years, the son of a wealthy dry-goods dealer, who was so far gone with the disease that medical consultation had pronounced recovery hopeless, and death only a question of a few weeks. The remedy consisted in the repeated transfusion from the arterial system of a healthy young man, who consented to act as donor, of from four to six ounces of fresh blood, according to the method styled "arterio-venous." The patient was so exceedingly feeble when the first transfer was made, that only four ounces were transfused, in consequence of the disturbance of the action of the heart that immediately ensued. The recrudescence of the vital energies was, however, extraordinary; and from the date—almost from the moment of the experiment—the patient began to improve. The tendency to emaciation disappeared, and the pulmonary symptoms were greatly reduced in severity, appetite for food returned, and the nervous prostration was greatly relieved. Three weeks later the operation was repeated with six ounces of blood, the method employed being that of Professor J. W. Howe, the leading advocate of transfusion in the United States. The results of the second experiment were even more satisfactory than those of the first. Three transfusions have now been undertaken, and the patient is improving so rapidly both in health and local symptoms that his recovery is confidently expected without another resort to the process. The true remedy for consumption has, it is believed, been at last discovered. Should such prove to be the case, the benefit will not be confined to consumptive patients. There are many persons who, living "not wisely but too well," would, there can be little doubt, be all the better for an occasional bleeding.

International Health Exhibition. — Eastern Gallery. — No House without Chappuis' Daylight Reflectors.—Factory, 69, Fleet-street.—[Advt.]

Scott's Midlothian Oat-Flour.—Messrs. A. & R. Scott, of Kingston, Glasgow, and Finsbury-square, London, have prepared a singularly pure and nutritious "Oat-flour," which bids fair to take high rank among the food products which are specially adapted for infants and invalids, and for the use of dyspeptics in particular, whose digestion is weak, and whose stomachs refuse to assimilate foods of ordinary kind.—Ed. Health.—[Advt.]

The Family Circle

"The child is father of the man."—*Wordsworth.*
"In bringing up a child, think of its old age."—*Joubert.*

SCARLET FEVER: HOW TO LIMIT INFECTION.

By W. Allan Jamieson, M.D., F.R.C.P.
Lecturer on Diseases of the Skin, Edinburgh School of Medicine.

(From the *Edinburgh Medical Journal.*)

PART I.

It is only in comparatively recent times that attempts have been made on a proper scientific basis to limit the spread of the zymotic diseases. After the discovery of the modifying effect which inoculation possessed on the course of small-pox, it was thought that other of the eruptive diseases might also be favourably influenced by their being communicated in this way; but though it was found that measles could in some instances be inoculated, the disease so induced ran an ordinary course. Scarlet fever has been accidentally conveyed in much the same mode to parturient females, usually with disastrous results. I can find no notice of any experimental inoculation in the case of healthy children. While few persons escape an attack of measles, very many never have scarlet fever; and thus it would be inadvisable for many reasons to propagate the disease artificially. Internal preventive measures have been failures so far. Neither belladonna nor sulpho-carbolate of sodium have been proved to possess any protective power against scarlet fever. In the case of measles, no preventive medicine has ever been suggested.

Scarlet fever stands alone in many particulars. It is now the most fatal of all the eruptive diseases. It is scarcely, if at all, infectious during its earliest periods, when it can be most easily and certainly recognised; and though we do not know at what period of its course it first assumes its infectious character, we do know that, left to itself, it becomes day by day, and for a considerable if not indefinite time, increasingly communicable. It is no wonder that the name of scarlet fever carries terror with it. The attempt to lessen this dread by calling mild cases scarlatina is much to be reprobated. *It cannot be too widely known by the public at large that scarlatina is but scarlet fever under another name, and that the mildest form of the disease in one individual may impart it in its direst malignity to another.* The restriction is used advisedly, for there are unquestionably some epidemics of scarlet fever far more severe than others. The type of the disease is not always the same.

Scarlet fever is a disease of children and young adults. In general, with advancing life the liability to it steadily decreases; and when middle age has been reached, the chances of taking it are small. The later in life that we are exposed to its contagion, the less risk we run. Hence the young should be shielded from exposure, and the elderly should act as nurses to those struck down by it; or, if not the elderly unprotected by a previous attack, those, though young, who have already had the disease. A second attack of scarlet fever, though not absolutely unknown, is excessively rare.

The removal of those members of a family who have not yet had scarlet fever to a distance from the individuals affected where they may be free from accidental communication, or may be transplanted entirely for a time from an infected district, would seem the most certain mode of protection. And yet there are often many drawbacks. Such a procedure is always more or less expensive. It may necessitate that children requiring special care should be placed in the hands of comparative strangers, and in the event of their falling ill the anxiety of the parents is doubled. The removal of the affected person from his residence to an hospital or other place where he can be treated till well, is another mode. In some instances this is absolutely necessary, and must be resorted to at all hazards. But there are many cases where to do this would be little else than cruelty, and there are very many others where, I believe, it is wholly unnecessary. What means, then, are available which will reduce to a minimum the chances of the spread of the disease, without distant separation, or even without separation at all?

It is needful to estimate these measures at their true value to understand the modes in which scarlet fever is conveyed from one to another. We do not yet know what the contagion of scarlet fever is. Micrococci (or living germs) have been found by some; their presence has been denied by others. But the infective particles which have the power of reproducing it exist in the scales which separate from the skin of the convalescent, and float in the breath exhaled from his lungs. It has not been determined whether the urine at any stage, or the alvine evacuations, can communicate this disease; but the disinfection of these is a comparatively easy matter, and in the absence of any direct evidence that by their means the disease may be spread, they have been left out of consideration. That the disease may be spread by the desquamating cuticle we have abundant and undoubted evidence. That it may also be communicated by direct inhalation of the breath, as in the analogous case of diphtheria, there can be no doubt. These two are therefore the main, if not the only, channels through which the disease is conveyed from the affected to the healthy.

When once these minute infective particles have become diffused in the air which surrounds the sick person we have no further control over them. We have no available means of disinfecting the atmosphere while the patient is in the same apartment. Those substances which might possess the power of neutralising the contagion in the air are incompatible with life, and, if employed in a strength sufficient to exercise control over the infective material, would prove fatal to every living being within their range. Thus, all agents employed to disinfect the air of rooms which are at the time occupied are, to say the least of it, harmful. If they are possessed of odour, they mask the closeness of the air and the consequent necessity for ventilation. If they have no smell, they are objectionable, as tending to foster feelings of false security.

Educational Overpressure.—A return has been presented to Parliament of the evidence given before the coroner relative to the death, on Feb. 12, of a child, aged eight, named Elizabeth Emma Rowley, who had been attending a school at Cheltenham, and whose death, according to the evidence, was caused by inflammation of the brain, and hastened by the mental strain from overwork. Dr. W. A. Moseley, of Cheltenham, who attended the child, stated that the lessons which the deceased had to learn at school were too great a mental strain for a healthy child of seven or eight years to bear. In the condition in which this child was the strain would be more severe, and he most certainly thought that the mental strain she had to bear hastened her death.

COCA OR CUCA LEAVES.—The new stimulant, gives renewed life and vigour to the *Weary* and *Overworked.* Dr. Blunt, of Northampton, says:—"The recuperative powers of this restorative are truly astounding." Sample packets, together with medical and scientific opinions, 13 stamps, post free, from J. T. Marks & Co., 17, Newcastle-street, Farringdon-street, E.C.—[Advt.]

Healthy Houses

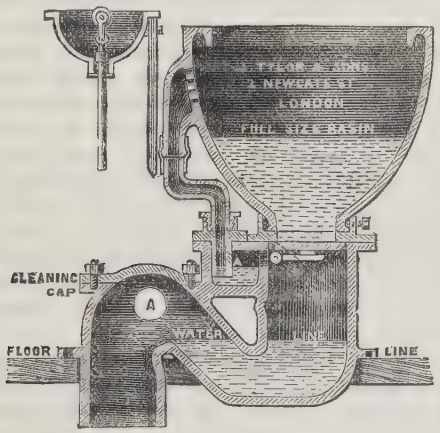
"A happy home must be a healthy home."—*Anon.*

MODERN SANITARY IMPROVEMENTS IN DWELLING-HOUSES.

By H. M. Mavor and D. J. Ebbetts.

SECOND PAPER.

In our first notice we called attention to the commonly accepted form of the pan closet and its inseparable D-trap, and upon examination it will be found that from their peculiar and totally wrong construction they leave many angles and corners for the accumulation of foul substances, which cannot be cleared away by any ordinary method. "Where the eye seeth not, the heart grieveth not;" but this is not so much a question of the eye, but of the nose, and this organ is, therefore, much exercised under the existing conditions, which are effectually met by substituting the valve-closet and P-trap, such as shown in the accompanying diagram.* There are many forms of this apparatus by



various makers differing somewhat in detail, but agreeing in general principle, the advantages being that there can be no accumulation of filth, no obstruction, and that any part can be easily reached and thoroughly flushed by the action of the water passing through. As regards the question of cost, it is but little more than the former arrangement, but the non-liability for repairs or getting out of order fully makes up in the end for any difference as regards money value, to say nothing of the sanitary convenience and security. Under the apparatus is shown a cast lead or earthenware P-trap, which is the best form for this position, and contains none of the defects of its predecessors, having also the advantage of less cost.

Another form recognised by sanitary authorities is the "wash out," which also is cleanly and useful. It dispenses with the valve above the P-trap, but this omission is occasionally questioned by the reformer under certain circumstances, such as in hotels or large buildings, where the apparatus is in constant use, the principle being held that the valve is useful to repress the slight amount of smell which must necessarily arise from the comparatively tainted water remaining in the trap. In one notable hotel on the South Coast, where these "wash out" closets were in use throughout, they were replaced by the valve apparatus first mentioned, and the result was very satisfactory.

The soil-pipe will be understood as the upright pipe conveying the discharge from a closet down to the drains. This pipe, which we have already remarked should be fixed outside the house, should always be carried up to a safe position above all windows, &c., as a ventilation-pipe, and at the foot of this pipe it is necessary to fix a trap that should shut back all smell from the drain, and the trap fitted with a grating at the surface of the ground for the admission of fresh air which will constantly enter and pass up the soil-pipe, escaping at the top where it can do no harm. Thus, instead of the soil-pipe, as in the old-fashioned arrangement, being a clever device by which poisonous sewer-gas was carefully laid on to the house, it now becomes a pipe filled with a constantly moving current of fresh air.

It is to be hoped that this statement is fully understood; for although it is of great importance to have a proper closet apparatus, and not an arrangement for retaining decomposing substance and foul gas in the house, such as the pan closet and D-trap to which we have referred, still it is of almost equal importance that the closet should discharge into a clean soil-pipe and not a foul one. And here we would warn our readers that this pipe is often made of too large a size; there are very few houses indeed where it need be larger than four inches diameter, and for most houses three inches diameter is sufficient—the smaller the pipe the greater the force exerted by the water—and where, as is sometimes the case, the supply of water is limited, this becomes of considerable importance. The soil-pipe, being fixed externally, is generally of cast iron, and the joints require to be carefully made air-tight. This is a small point which the ordinary builder is apt to look upon with supreme indifference, and yet it seems tolerably obvious that if the discharge is to be conveyed by the pipe the latter should be arranged so as to effectually serve its purpose, and not distribute the smell through a succession of open joints.

When the pipes are fixed internally, as in some badly-arranged houses they still have to be, no better material can be found for them than lead, but if fixed externally this metal must be protected with strong casings or guards, as lead in any portable form has great attractions for a certain class of thieves, and the householder, awaking in the morning and finding the greater part of the soil-pipe gone, would be inclined to replace it with a material offering less temptation to these amateur plumbers. This tendency to stealing lead, which at one time assumed serious proportions, and extended to all branches of the plumber's work, is now somewhat lessened, owing to the increased difficulties in the way of obtaining it or disposing of it when stolen, and also to the enormously decreased value of the material.

Essentially "modern improvements" will be found in the various traps now brought into use. About a dozen years ago they were comparatively rare and little understood, although the more advanced sanitarians, recognising the principle, constructed or built them of brick and stone combined, thus they were necessarily cumbrous and costly, and apt to get out of repair much more easily than the compact and convenient "arrangements in earthenware" now to be procured from a host of manufacturers.

* Kindly lent by Messrs. Tylor & Sons.

Medical and Sanitary Exhibition, 1881.—Reward of Merit.—International Health Exhibition, 1884.—Stand 69.—Diabetes. Van Abbott's Gluten Bread, and all other suitable Foods for Diabetics, Dietary Table, Menu, Cooking Receipts, and Price List, post-free on application. Delicate Children. Van Abbott's Hypophosphite of Lime Biscuits, for Children suffering from Debility, Deficiency of Bone, or Ricketts. See the *Lancet* and Health. Constipation. Van Abbott's Bran Biscuits. Dyspepsia. Van Abbott's Malt Biscuits. Van Abbott's Vegetable Bread and Milk, Saccholac for Infants, Imperial Granum, Rolled Avena, and all American Cereals for Infants and Invalids. Hathorn Table-Water direct from the Springs in Saratoga, U.S.A. G. Van Abbott, 5, Princes-street, Cavendish-sq., London, W.—[Advt.]

Recreation and Health

"Health is the vital principle of bliss,
And Exercise of health."—*Thomson.*

HEALTH AND HOLIDAYS.

FOREIGN HEALTH-RESORTS.—VI.

By a Physician.

Davos Platz.—Probably, about no place has there been so much discussion in recent years as Davos Platz, with the result that it is now one of the most fashionable—we use the word designedly—health-resorts for the treatment of consumptive patients that we have. By many people its great merits are supposed to lie in the fact that it is situated at a tremendous height above the level of the sea—rather more than 5,000 ft; we, on the contrary, are inclined to think that the benefits undoubtedly accruing to consumptive patients from a winter residence there are due to the circumstance that it has an exceptionally dry and pure atmosphere, a fine subsoil, and a scanty population—or rather what once was a scanty population; it is anything but scanty now during the season—and that if one could find a town possessing, to an equal degree, the same recommendations at a lower elevation—which one undoubtedly can—it would have equally beneficial effects. However, this is a vexed question, into which we will not enter. It is our business to describe, not to debate, so let us return to our duty. Davos Platz, then, strictly speaking, is a town 5,105 feet above sea-level. It is, further, situated in Switzerland, in Canton Grisons, in a very pleasant mountain valley. It is principally known as a residence for consumptives, and without doubt many patients who have repaired there have been greatly benefited. The climate in the winter is particularly dry, the sky clear and cloudless, and there is little or no wind. The temperature during the day and at night time differs very considerably—as much sometimes as 26 deg.—owing to the intense heat of the sun; delicate invalids should, therefore, be careful not to venture out after sun-set. The chief amusements are skating and sleighing, for which, as may be imagined, there is every opportunity; in the neighbourhood there are also many interesting places to visit, and fishing likewise may be had. At the present day, Davos Platz stands greatly in danger of being over-crowded—if indeed it be not over-crowded already. Hotels: Hôtel et Pension d'Angleterre, Hôtel et Pension Belvedere, Hôtel et Pension Buol, Hôtel Strela, Kuranstalt, &c. Route: By Calais (or Boulogne), Amiens, Rheims, Chaumont, Delle, and Berne, to Bâle. From there the traveller must proceed, viâ Zurich, to Chur, and here he will find a diligence to take him on to Davos Platz; or, if he prefer it, he can get out at Landquart, the station just before Chur, and take the diligence thence. Fares from London (about) 1st class, £6. 12s.; second, £4. 15s.

Dax.—An old-fashioned town of 10,250 inhabitants, in the Landes, about thirty-three miles from Bayonne, situated on the Adour. In its climate, it somewhat resembles Pau, but it possesses, in addition, very powerful thermal springs, containing carbonate of magnesia, sulphates of lime and soda, and chloride of sodium. They are said to be very useful in cases of rheumatism and chronic gout, and also in some forms of nervous affection. Hotels: Termes de Dax, Hôtel de la Paix, Hôtel de l'Europe, Hôtel du Figaro. Fares from London, *viâ* Paris and Bordeaux: £6. 12s. 6d., £4. 19s.

Dieppe. — This favourite French watering-place is situated, as most people are aware, on the coast of Normandy. It stands at the mouth of the River Arques, between two ranges of high white cliffs, and is divided by the harbour into two portions, Dieppe proper being on the western side, and Le Pollet, which is, strictly, a suburb, though considered part of the town, on the eastern side. The two are connected by a swing-bridge, open at high tide to allow of vessels passing to and fro. The principal place of resort during the bathing season at Dieppe—lasting from June to September—is the beach. It is almost a mile long, and extends from the shipbuilding-yards near the harbour to the foot of the cliff where the picturesque old building known as the château stands. There is a very handsome bathing establishment, and casino, a small but pretty theatre, where, during the season, some excellent companies appear, and a variety of other amusements. The neighbouring country also is interesting. Hotels: Hôtel Royal, Grand Hôtel des Bains, Grand Hôtel Français, Hôtel Bristol, Grand Hôtel des Etrangers, Hôtel de la Plage, &c. Fares from London to Newhaven, thence by steamer direct, first-class, £1. 3s., second, 16s.

Dinan.—A quaint old town in Brittany, numbering some 10,000 inhabitants. It is principally remarkable for its extreme picturesqueness, and to the lover of antiquity it must be a perfect store-house of interesting subjects. The surrounding neighbourhood also is highly attractive. Hotels: Hôtel d'Angleterre, Hôtel de Brétagne, Hôtel de la Poste, Hôtel du Commerce. There are two ways of going to Dinan, either by Cherbourg or St. Malo; probably the latter is the best, since it affords the traveller the opportunity of seeing this place; besides which, it is the cheaper. Fares from London, *viâ* Weymouth or Southampton to St. Malo, thence to Dol, £2, £1. 8s.

Poverty is hard, but debt is horrible. A man might as well have a smoky house and a scolding wife, which are said to be the two worst evils of our life.

Dr. Frankland stated in his lecture on March 17, that the daily quantity of water supplied to London amounted to 145,000,000 gallons, equal to 23,000,000 cubic feet, or an aggregate of 8,395,000,000 cubic feet in the year.

Carbonic Acid Gas.—Carbonic acid is the highest oxide of carbon, and the substances adhere to each other with such tenacity that even the intense heat of burning magnesium can do but little in the way of separating the oxygen from the carbon, for when burning magnesium is plunged into carbonic acid gas it burns fitfully for a short time and then goes out. Notwithstanding this strong affinity, the leaves of trees separate the carbon from carbonic acid under the influence of sunshine, but how they do so is not known; the oxygen thus separated does not appear to be ozonised. The red rays of the spectrum are most active in effecting the decomposition in the leaf, and the action of sunlight is clearly one of deoxidation. The carbon is not deposited in pure state, otherwise it could not move about in the plant; it seems to be produced first in the form of sugar, which is afterwards transformed into starch, or it may be that starch is formed first and sugar afterward. As starch cannot move about in the plant, the inference is that sugar is formed first. In an experiment it can be shown that permanganate of potash—Condy's Fluid—is deoxidised by the addition of peroxide of hydrogen, although both substances have strong oxidising powers.

Pure Water is such a vital necessity that, without it, illness is certain. None are more prone to the ill effects when impure than the young. To ensure a pure supply send a post-card to the London and General Water Purifying Company, Limited, 157, Strand London, W C., who will return particulars post-free.—[Advt.]

Jottings from the Journals

"Th' ingredients of health and long life are
Great temperance, open air.
Easy labour, little care."—*Sir Philip Sidney.*

Health-Resorts at Home.—The season of "change" is again upon us, and "where to go" is the question of the hour. Practically, and as we think prudently, the Continent is regarded as closed against visitors for the present year. There is no cause for regret on this score. No climate, no waters, no baths, no air, can be obtained or enjoyed on the Continent for the "cure" of any disease whatsoever—we say this advisedly—which cannot be obtained in as great, or even greater, efficiency within the limits of our own islands. For example, Strathpeffer, in Scotland, is incomparably better, so far as remedial resources are concerned, than Royat or Ems, or any other of the vaunted spas or baths across the "silver streak." Buxton, Matlock Bath, and a score of other places, are every bit as good as the health-resorts to which it is fashionable to go at great personal trouble, and risk of contamination by dirt or blood-poisoning from the insanitary condition generally of the Continental places of concourse. It is simply because a long journey must be taken, and the language spoken is different, and because the local authorities of these places abroad are wiser in their generation than our local authorities at home, and spend more money to make their surroundings attractive, that foreign baths and spas are popular. We cannot hold the members of our own profession free from blame in the matter of crying up the "waters" and "baths" of the Continent at the expense of those of the home country. Let us hope that this year pains will be taken to search out and form a just and patriotic estimate of the facilities for change and recuperation which lie so close at hand that we almost systematically neglect them.—*Lancet.*

* * *

School Board and Ring-Worm.—Dr. H. Stowers writes to the *British Medical Journal* as follows:—"It has long since recurred to me that some more decided step should be taken to check the weekly spread of the conspicuously troublesome disorder, to which your article in the *Journal* of July 12 refers, under the above title, amongst large assemblies of children. The expression—'It is one of the most mischievous ideas to suppose this is a trivial affection'—emphatically meets the far too prevalent view entertained, both by teachers and parents, that ring-worm, because not dangerous to health or life, needs no more than passing attention. As supporting the tenour of your remarks, two instances of many under present treatment occur to me. The first, a young gentleman, after having a 'scurf' for a long period, contracted at school, is proved to be suffering from chronic ring-worm, up to the detection of which he has mixed unprotected with his numerous fellows at a large London public school. The necessary interruption to his studies is in itself sufficiently important; but, in addition, so long as the father of the lad desires to retain his place at the school, full fees, and those in advance, have to be paid to the authorities. The second instance I will relate occurred to me but a few days since. A child, who had contracted the disease at school many weeks ago, produced at the hospital a School Board certificate for signature (including the direction that it must be filled up at the expense of the parent), to relieve its mother of the penalty of absenting her. Surely, while the spread of the infection morally rests with those who are in charge, it is not too bold to expect that some provision should be made by them whereby it can be recognised at an early stage, and isolation effected During ten years of observation, including seven in the Skin Department of St. Bartholomew's Hospital, the number of cases I have known to exist at one time in a single school is astounding; indeed, it is questionable whether any educational establishment on a large scale could not produce a number of affected children sufficient to justify the setting apart of a special teacher, and class-room; continuous treatment and the wearing of caps being not only allowed, but enforced. Until skilled supervision is adopted, and periodical re-examination made, with a minimum interference with educational requirements, this matter cannot be said to have received the attention its importance requires."

* * *

Absinthe as a Cure for Cholera.—As if Frenchmen had not sufficient excuses for drinking absinthe already, says a contemporary, a French priest fresh from Cochin China has supplied them with another. Absinthe, it is now proclaimed, is an infallible remedy for cholera. A small dose of absinthe, taken in a glass of claret, will restore circulation and warmth. With some patients the cure is as rapid as the attack, with others it is only accomplished after twenty-four hours. In a small parish in Cochin China M. Janin, the priest in question, cured seventy-three cholera patients out of the seventy-six attacked by the disease; six French soldiers in the fortress of Soctrang were cured by the same means, while only one died, and he was dying before M. Janin came. Should one dose of absinthe prove insufficient, M. Janin recommends the patient to continue taking it; he says of himself that when attacked by cholera he drank one-third litre of absinthe in about ten minutes, after which he slept and awoke cured. It is a curious fact that after taking five or six doses of claret mixed with absinthe, the patients are rarely intoxicated. If, however, they fall asleep in a state of intoxication they are saved. In case of an insufficient quantity being taken, death is sure to ensue. In the long run, however, it is safe to say that absinthe will kill many more Frenchmen than cholera.

* * *

Worcestershire Sauce and Cholera.—The proprietors of this excellent sauce tell us that it is good with everything, from soup to cheese, but a new use has lately been found for it. A correspondent of the *Broad Arrow*, serving with the Army Hospital Corps at Ramleh, Alexandria, writes:—"The treatment of the cholera cases is at first a strong stimulating mixture, to promote reaction, brandy, champagne, and aconitine, atropine, and pilocarpine injested hypodermically. They gave one man a good draught of 'Worcestershire Sauce,' which has been found an excellent thing."

Ground Water and Resultant Disease.—Mr. Baldwin Latham, M.Inst.C.E., writes to the *Times* that the indications are that there will be in England during the coming autumn a general low state of the ground water, and that this has occurred with regularity every tenth year since 1854. He adds:—"Whenever the water in the ground has reached a considerable degree of coldness, when replenishment commences, in all places in which the water is liable to pollution, we have the conditions which bring about epidemics of typhoid fever, and it therefore behoves all persons who are suspicious of the quality of their water-supply to take the precaution to have all water used for dietetic purposes boiled before it is used during such periods as we are now entering upon. By adopting this precaution much illness and suffering may be prevented."

Our Bookshelf

"Reading maketh a full man."—*Bacon.*

INTERNATIONAL HEALTH EXHIBITION HANDBOOKS.

(1.) *Healthy and Unhealthy Houses in Town and Country.* By William Eassie, C.E., &c., with an Appendix on Water Supply by Rogers Field, B.A., &c. (2.) *On Ventilation, Warming, and Lighting, for Domestic Use.* By Captain Douglas Galton, C.B., F.R.S. (3.) *Infectious Disease and its Prevention.* By Shirley F. Murphy, Medical Officer of Health to St. Pancras. (London: William Clowes & Sons.) 1884.

Probably these three additions to the series of Health Handbooks issued under the auspices of the Exhibition authorities, are amongst the most important included in this set of guides to healthy living. All three deal with questions of paramount interest as regards both public and personal health; and, as such, these handbooks should be widely read and carefully studied by all who have the welfare of their family-circles at heart.

Mr. Eassie's manual, for instance, treats of a topic which may be said to form the foundation of health and happiness. The "home," to realise the full purport of its name, must be a healthy domicile. Too often, carelessness on the part of the builders, neglect on the part of workmen, and ignorance on the part of householders, render useless and ineffective all the precautions which sanitarians tell us are necessary for the preservation of health. Mr. Eassie's manual has the clear merit of placing in plain and unmistakable terms before his readers, the causes of ill-health which spring from defective house-construction. He treats plainly of matters too long believed to lie within the province of the plumber and builder. The choice of a site, the arrangement of houses with regard to ventilation, house-drainage, traps, soil-pipes and closets, rain-water and water-supply, and other details are lucidly treated by the author. It is one of the merits of a book like that of Mr. Eassie's, that subjects of the most technical description are brought to the level of the popular comprehension, and are thereby made plain to the intelligence of the householder, who, without desiring to qualify himself for the practice of the plumber's or builder's trade, may yet legitimately aspire to know something of the internal arrangements and construction of his domicile. Just as the layman may legitimately and creditably aspire to a knowledge of anatomy and physiology, sufficient to guard him against the ordinary and commonplace errors of personal life, so in another aspect he may think fit, as a matter of common-sense to acquire information regarding the special dangers to which, through laxity in workmanship, he may be exposed in his home. There is a vast fund of information in Mr. Eassie's book which all may appreciate. Mr. Field's appendix on the Water Supply and Disposal of Sewage of Country Houses forms an important addition to Mr. Eassie's volume. He points out the special dangers of the water supply drawn from shallow wells, and affords reliable information regarding the due regulations of that important element in the conservation of health—the disposal of sewage.

Bearing as intimately on health at home as does the manual of Mr. Eassie, is the handbook which Captain Galton contributes to this series. The subjects of "Ventilation, Lighting, and Warming for Domestic Use," are in themselves of intrinsic importance in relation to the physical well-being of the household; and they are, at the same time, topics which, commonplace as they may seem, are of highly-neglected kind. Probably every householder, for example, has experienced the difficulties of ventilating his domicile. He has tried the accustomed methods, but without success; and, in despair, comes to the conclusion that no system of ventilation, short of rebuilding his house, is capable of removing the discomforts to which foul air gives rise. The value of such a work as that Captain Galton gives us, is nowhere better exemplified than in the clear instruction he gives the novice in ventilation. Without any previous acquaintance with the subject save that which relates to the ordinary physiology of breathing, and to the nature of the waste products which are eliminated in respiration from the system, the reader of Captain Galton's manual may ascertain how best he may obviate the consequences which bad air and an overheated atmosphere inevitably entail on the human frame. All the expedients which modern science has brought to bear on questions of ventilation, warming, and lighting, are duly noted in the manual before us. The illustrations contained in this handbook will be found materially to contribute towards the due understanding of the subjects treated. The "Æolus waterspray" system of ventilation, we are glad to see, is duly noticed by Captain Galton among the most recent attempts to solve the difficulties of this subject.

Mr. Shirley F. Murphy's manual on "Infectious Disease and its Prevention," is a handy guide to a knowledge of the modern treatment of the diseases which owe their importance to their power of affecting communities at large. The author lucidly divides his topic into a number of plainly-appreciated chapters, and places his facts *seriatim* before his readers. Incidentally to his treatment of the subject, Mr. Murphy contrives to convey a large amount of information regarding the less popular aspects of disease-prevention. He clearly shows the characters of the different diseases of which he treats. His table of the infectious diseases is worth reproducing. It runs as follows:—

Communicated by means of the excreta, by air, water, and infected articles.—Cholera, Typhoid (or Enteric) Fever. *Communicated by food (milk).*—Enteric Fever, Scarlet Fever, Diphtheria. *Communicated by air, contact with sufferer or infected articles.*—Scarlet Fever, Diphtheria, Typhus fever, Measles, Rötheln (German measles), Mumps, Relapsing Fever, Whooping Cough, Chicken-pox, Small-pox.

Probably the chapters which are of the highest practical importance in this manual are those dealing with the "means of preventing communication of infectious diseases," and with the "means of producing insusceptibility to infectious disease." Under the latter head, Mr. Murphy gives a clear account of the protective powers of vaccination. Those who are wavering between accepting the statements of anti-vaccinators and giving their adhesion to the vaccinationists should peruse Mr. Murphy's pages. He gives therein convincing proofs of the protective power over small-pox exercised by vaccination, and of the importance of securing that the operation in question is fully and carefully carried out. He lays down the axiom that "the value of vaccination as a protection against small-pox depends upon the manner in which the vaccination is performed. It is possible," Mr. Murphy continues, "by the introduction of vaccine lymph in one small place to obtain complete protection against small-pox; but for a while only. If the protection is to last for a number of years, the vaccination should be in five, or in four places at the very least, and should be performed in such a manner that the scars resulting should together have an area of at least one-half of a square inch." These remarks show what anti-vaccinationists tacitly neglect to note and admit—

namely, that our information concerning vaccination and its effects has been a thing of gradual development and evolution; and that experience teaches the true rules according to which success in securing protection against small-pox can be secured. As evincing the protective powers of vaccination, Mr. Murphy quotes the experience of the London Small-pox Hospital at Highgate. Here, where many thousands of cases have been treated, "small-pox among the attendants was practically unknown; the only case in forty-eight years occurring in a man who refused to be re-vaccinated, and the same story is true of other institutions." The interesting statement of the late Mr. Marson, whose experience of small-pox was so extensive, is also quoted to the effect that, "Supposing an unvaccinated person to inhale the germ of variola (small-pox) on a Monday; if he be vaccinated as late as the following Wednesday the vaccination will be in time to prevent small-pox being developed; if it be put off until Thursday small-pox will appear, but will be modified; if the vaccination be delayed until Friday it will be of no use, it will not have had time to reach the stage of areola, the index of safety, before the illness of small-pox begins." Mr. Murphy's volume will well repay careful perusal by all interested in health-science.

LITERARY JOTTINGS.

Clergyman's Sore Throat and Post-nasal Catarrh—Causes, Symptoms, and Treatment. By Dr. Senge Stoker. (London: J. & A. Churchill. 1884.)—This is a handy little pamphlet, dealing with a very common malady, and giving plain directions for effective treatment.

Messrs. Cassell's Serial Publications, comprising the new parts of *The Book of Health*, *The Household Guide*, *Popular Gardening*, and *Countries of the World* are to hand. These elegantly got-up serials show no sign of falling off in attractiveness.

Sanitary Appliances, Etc.

STOTT'S PATENT GAS GOVERNORS.

Those who are annoyed by the flaring of gas-jets and by the screaming of flames under the varying conditions of pressure, will be pleased to learn that at last a thorough and effectual remedy has been found for what can only be called a social nuisance. The waste of gas which takes place under circumstances in which varying pressures are made to operate, amounts, even in an ordinary household, to a considerable sum per annum when compared with the total amount of the gas-bill. In addition to the defect of bad light, the nuisance of screaming flames, and the additional sum paid really for light which has not served its true purpose, it need hardly be remarked that the health aspects of this gas-question are likewise of a highly important kind. The half-consumed gas-vapours, allowed to escape into an ordinary room in which the ventilation is not of the most complete character, render the atmosphere extremely unhealthy and dangerous. In Stott's "Gas Governor," however, the public have at last an opportunity of fully commanding their gas supply. The apparatus, which is readily fixed at the gas-meters of the house by any gas-fitter, perfectly controls the gas-supply coming through the meter. Over-pressure is absolutely prevented, and gas-waste is thus rendered an impossibility. The principles of the "Stott Governor" are described as follows:—"The advantages of the Stott 'Regulator' are, that it will save from 10 to 40 per cent., and give a better light, by simply reducing and maintaining a uniform pressure of gas on the distributing mains throughout the building, so that no more gas is forced through the orifice of the burner than can be perfectly consumed, thereby giving the highest degree of illumination possible for the amount of gas used. The real point at which gas of average quality should be burned to get all the light-giving properties possible is at a pressure equal to a column of water half-an-inch high; with less it gives a smoky, flickering light, and with more the combustion will also be imperfect. In either case it will be flickering and unsteady, and very hurtful to the eye, as all know who have read or worked by an unsteady light. When gas is imperfectly consumed it gives off certain products as the result of imperfect combustion, that are not only injurious to the health, but very destructive to books, pictures, &c."

The most practical test, however, of the utility of the Stott "Gas Governor," and that which will appeal most powerfully to the householder, is that afforded by the diminution in his gas-bills, along with the improved quality of the light. Thus a house whose yearly gas bill before the Stott "Governor" was in use amounted to £17. 10s. 6d., saved £5. 8s. on the next year's bill when the Stott "Governor" was introduced. As the "Governor" itself only costs for twelve lights £1. 19s., for twenty-four lights £2. 16s. 6d. (and so on, in proportion to the lights to be controlled), it can readily be seen that the "Governor" repays its own cost twice or thrice over during the first year of its existence. At the Royal Infirmary, Kidderminster, the gas account for 1879 was £64. 9s. 10d., without the "Governor," and for 1880 £52. 5s. 6d. with the "Governor." Hundreds of similar cases have been supplied to Messrs. Stott, and in the publishing offices of Health these handy and useful machines have long been appreciated. Many Government buildings, hospitals, hotels, clubs, &c., are now fitted with the "Governor"; and we should strongly recommend every householder desirous of saving in his gas-bills, of finding clearer illumination, and of keeping a pure atmosphere in his rooms, to visit Messrs. Stott's establishment, 174, Fleet-street, London, E.C., where the working of the "Governor" will be fully demonstrated by Mr. Wood, Messrs. Stott's representative.

As a further proof of the efficiency of this most useful invention, we may add that a No. 7 gas-burner, consuming 2½ feet of gas, gives with the "Governor" in use the same light as a No. 3, consuming 5¾ feet; a No. 6, consuming 2¾ feet, gives same light as No. 3, with 5¾; a No. 5 burner, consuming 3 feet, gives same light as No. 3; a No. 7 burner, consuming 3½ feet, gives the light of a No. 4 burning 6¾ feet, and so on. The principle of the "Governor" may, lastly, be described as follows:—"Any excessive pressure immediately acts on the inverted cup, sealed in an annular trough, filled with quicksilver. To the centre of the inverted cup attached is a simple spindle, at the bottom end of which is a double-beat valve, a high-pressure raising the inverted cup, and thus closing the valve, while a low pressure allows it to fall, thus opening it; for instance, say 50 out of 100 lights be turned off, there will be a corresponding increase of pressure on the inverted cup, raising and thereby closing the valve partially, so that for every light turned off or on, or any increase or decrease in street mains, there is a corresponding opening or closing of the valve in the 'Governor,' the pressure at the burner thus being the same under any circumstances, the result being a saving of from 10 to 30 per cent., varying according to the pressure at which the gas is supplied to the consumer."

Our Letter : Box

"Conference [maketh] a ready man."—*Bacon.*

LETTERS TO THE EDITOR.

NOTICES TO CORRESPONDENTS.

All Communications for the Editorial Department (including specimens of Sanitary Appliances, &c.), to be addressed to "The Editor of Health," *74-76, Great Queen-street, London, W.C. Those intended for the Publishing Office to be sent to* "The Publisher," *at the same address.*

MISS CHREIMAN'S GYMNASTIC CLASSES.

20, Gwendwr-road, West Kensington.

Sir,—I have just seen a notice in Health of a demonstration of physical exercises given by pupils of mine at the Health Exhibition, in which mention is made of the movements as curative in cases of spinal disease.

I should like to explain that the exercises, as there shown, are preventive of such complaints, but specially adapted movements are necessary to the cure, or arrest, of even slight spinal deformity. As this should be understood, and is not clear in the kindly article to which I refer, may I beg the favour of insertion of this or other explanation in your next issue?—I am, Sir, very faithfully yours,

M. A. Chreiman.

QUERIES AND ANSWERS.

GENERAL.

Bazaar.—We regret being unable to aid you. The matter is simply one calling for the attention of the proprietors of the newspaper in which the advertisement appeared. We should strongly advise you to write to the editor of the journal in question, and expose the character of the advertisement, which has, no doubt unwittingly been admitted to his pages.

Tricycling Replies.—Intendant. Not at present. In a future number.—B. G. O. No injury, as far as we can see; only requiring care.—Annie G. Not at the times mentioned.—Ethelbert. See Mr. Smith's article in Health No. 68.—A. L. N. We should say be more gentle in your exercise. You have taken too eagerly to the pursuit. Rest, and bathe with cold water each morning.—E. P.—On an average, eight miles, we think.—T. Johnston. Possibly arises from indigestion. Certainly not a complaint with which tricycling has anything to do. Do not take exercise just after dining. Rest for at least an hour.—E. G. S. Symptoms not alarming; the tricycle will certainly do you good.

C. Edgar.—Declined with thanks.

Ambulance.—Yes; our "Ambulance Lectures" are in preparation for Health, and will be published in autumn and winter in our pages.

Alter Ego.—A quack; have nothing to do with him.

G. B.—You refer to the fact that the *Rotifera*, or "Wheel Animalcules," can exist for a long period in a perfectly dry condition. This is what is called "dormant vitality." The seeds of many plants exhibit the same phenomenon.

Enid.—Unless you adopt the startling theory that the human chest, as a cone, has its base above and its apex below, you cannot for a moment believe that tight-lacing is "elegant," far less natural. Health should be placed before fashion, and if, as physicians know, there are many serious ailments following tight-lacing, we should esteem you worse than foolish if, to conform to any so-called ideas of "elegance," you constricted your waist and deformed your chest.

P. A.—See our advertising pages.

A. T.—The belt is a genuine electrical one.

M. A. L.—We know of no such person. If any one so represented himself as connected with Health, he was guilty of fraud. Any one who has a business connection with this journal is always able to produce credentials.

Susan Gray.—We cannot undertake to determine "the most healthy corset" for you. Other things being equal, we should say one which fits you without any compression, if you wear one at all.

Frank.—The classic work on the subject of Medical Electricity is that of Drs. Beard and Rockwell (published by Lewis, 136, Gower-street, London). This is a large and expensive work. Have you read the series of articles in last year's Health on this topic by Mr. Carpenter? A good manual is that of Dr. De Watteville (price 9s.), also published by Mr. Lewis. There is no "popular" guide, so far as we know. The subject is yet in its infancy in many respects.

E. Clark.—Many thanks for cuttings, which we had already noted.

H. B.—Your best plan would be to write to the manager of the Hydropathic Establishment there, and obtain from him all needful information. We shall be glad to assist further, if this hint does not meet your requirements.

SANITARY.

L. G.—1. We do not believe in the theory you name. There is no evidence at hand of its correctness. 2. Try carbolic acid—full strength (No. 5 Calvert's).

Ted.—No remedy save putting in another form of closet. This will save you expense in the long run.

J. Amber.—Depends on what you mean by "fumigation." We should prefer to say "thorough disinfection."

Lawyer.—The nuisance has before now been complained of. We believe you will find the Medical Officer of Health already prepared. Try him.

T. B.—See "Healthy and Unhealthy Houses," by W. Eassie, in the "Health Exhibition Series."

George Tait.—You mean the "Dipstone Trap"—an utter abomination.

Dr. Passerat.—Send to Messrs. Clowes, publishers, 13, Charing Cross, London, S.W., for a list of the International Health Exhibition handbooks, among which you will find the books you require.

MEDICAL.

D. D.—1. Try applying plain Vaseline; or use Hazeline weakened with a little water as a lotion. 2. Protect the back of the neck in future, and apply Vaseline if the skin is irritable.

R. S.—We think you are only highly nervous, and without reason. Simply look to your digestion, and take fifteen drops of *Fer Bravais* thrice daily in water after meals as a tonic.

Caroline Watson.—Eat some of Bragg's Charcoal Biscuits, and continue the Lactopeptine. The latter will do you good. We do not know the "extract" you mean. Condy's Fluid is a good disinfectant. Better purchase it ready-made. "Condy" having no odour of itself, cannot disguise any bad odour.

Young Husband.—Scarbro' is bracing and will do you all good; but, unless you are good sailors, we should not advise you risking a sea-passage. As a rule, young infants should not be taken by sea. You had better avoid the boat and try the rail.

A. A. D.—See and follow advice to "Outis" in Health No. 68. Do not despond; there is no reason why you should do so. Avoid the quack whose pamphlet you send us. We have forwarded the pamphlet to the superintendent of the Glasgow police.

Anxious.—There is no "certain cure." Merely avoid stimulants, et your food be of vegetable character, avoid chills, and attend to general health. If, as is often the case, the redness proceeds from indigestion, take a little of Morson's Pepsine daily with your food.

W. H. T.—The change to the sea will probably cure you. Rest when there; and don't take active exercise. See that you avoid constipation, and stop beer and other liquors. An injection (twice daily) of water, to which a few drops of Condy's fluid have been added, will aid you. Take also for a time the tonic recommended to "Outis" in Health No. 68. This will aid the change of air in curing you.

Un Homme Désespéré.—See and follow advice to "Outis," in Health No. 68. It is quite clear your troubles are far more of the mind than the body. You have worried yourself into the idea that you are ill—hence your misery. Rest assured it only remains with yourself to throw off your melancholy. Go away for a change; try a sea voyage, or residence in a bracing resort (*e.g.*, Yarmouth, which is near you). The tonic need not be taken, save at intervals. Food to be light and nourishing.

Salve.—No need to fear. Only a symptom of slight want of tone. Rest more, and try a change. Take for a time ten or fifteen grains citrate of potash in half a tumbler of water twice daily; and take a pill composed of two grains sulphate of quinine an hour before dinner daily. Let us hear the result.

A Lover of Health.—There is no one cure or panacea for sea-sickness. What suits one will not suit another, and so on. Be careful as to your food, which should be light. Try strong black coffee before starting, if you are inclined to be squeamish. See article on "Sea-sickness" in present number of Health.

Sym.—Read the article on "A Valuable Remedy," by Dr. Craig, in No. 63 Health, and give the Cascara preparations there named a trial. Read also reply to "Observer" in Health No. 68. The drug should benefit you and improve your system. Take open-air exercise; food to be light and nourishing. Avoid tea and coffee, and after a trial of the Cascara stop the medicine, and make fruits and vegetables part of your regular dietary.

Nomen.—1. No; quacks grossly exaggerate its importance. 2. Difficult to say; on the whole, however, is to be condemned as unnatural, we think, and apt to induce, in many cases, nervous ailments.

Nemo.—We quite understand your case from your clear description. The drum-membrane is thickened, and, as your trouble is chronic, the later medical advice you had stated the case to you in a perfectly correct fashion. Try the effect of taking ten grains bromide of potash each alternate night, in water, on going to bed, and see what effect this has on your rest. Have nothing to do with the London quacks you consulted. They are "deceivers ever," like all their tribe. Keep up your spirits, and see to your general health.

West-end.—Take plenty of open-air exercise, and eat a little light supper about an hour before bedtime. If this does not suffice, send description of your health, food, habits, &c.

Owl.—See article in Health No. 69 on "Precautions against Cholera." Our advice to you is summed up by saying: See to every detail of your general health, attend specially to the quality of the water you drink, exercise strict cleanliness, see that all cholera matter is at once disinfected, and check any stomach or bowel derangements on their appearance.

A Lancashire Lad.—We do not think the treatment to which you allude can do more than temporarily relieve you. "Acetic acid" cannot cure every disease, and in your case we do not think it can be of service. You may try it, however; it can do you no harm, we should say.

Constance Lascelles.—Try Feltoe's Spécialité Lime Juice

(Albemarle-street, London, W., or any chemist or grocer who is an agent for its sale). This will suit you (add water to taste) if you merely wish a cooling drink. The practice of taking magnesia is bad. For a mild, cooling aperient, try Lamplough's Pyretic Saline. The eye symptoms are not uncommon in cases like yours. You should see an oculist at once, and take his advice regarding the treatment of the eye which remains. Glad to be of any further service.

E. S. Z.—See and follow advice to "Outis," in Health No. 68. The tonic there named, taken for a short time, will serve to strengthen you. Above all, don't be nervous about your past and its effects. There is no reason for such fears or apprehension. Exercise great cleanliness in respect of the irritation of which you complain. More open-air exercise would improve your condition.

W. S.—You are making health considerations clash with your rowing exercise, which, of course, is highly foolish. You eat too late in the day; take a good meal at seven, and give up rowing if it interferes with your diet. See (for the skin-trouble) advice to "Student" in No. 69 Health. For the circulation, take walking exercise, preferable to rowing in your case, or try tricycling. If you persist in running for trains and hurriedly eating your meals, you will never be well. Eat fruits and vegetables as part of your dietary.

Sam Mayne.—A quack establishment from their practice and their advertisements. Favour us by telling us what you have heard of them from your friend.

Kalcine.—Have you given the Cascara Bark preparations a trial? See article by Dr. Craig in Health No. 63. If you take our advice, you will stop the waters, return home, and give a Cascara preparation a trial. The pill you name is tonic and laxative, but not adapted for your present state, we should say. Glad to assist further, if desired.

Afiach.—You are most probably mentally overworked, and your mental work, together with your lack of out-door exercise, may perfectly well account for all your symptoms. Arrange to take out-door exercise regularly, and take a pill containing two grains sulphate of quinine an hour before dinner for some days. Food to be light. Continue the fruits and vegetables. Cold sponging each morning might suit you, provided you have sufficient reaction.

Semaj.—1. Do not use a hard brush or comb to the hair. The brush should be soft. We should advise you to persevere still with the lotion you were last recommended, or to try Rowlands' Macassar Oil rubbed in night and morning. Wash the head twice a week, using a small piece of quillar bark, stirred in tepid water to make a lather, for washing the head. Report result in a week or two. 2. We do not think the opinion you had was a correct one. By your own account you are in good health, and hence the abstinence can be doing you no harm. Such advice is not without its dangers, as you must know. We advise you to persevere in your present mode of life, which is entirely in favour of health.

Kate.—Are you quite sure you are right in blaming the boots? It may have so happened that any boot would have produced the irritation, which may depend on other causes than the mere friction. It is the more difficult to understand, as you say the boots are roomy. If they were too wide, and thus "misfitted" you, we could understand the occurrence; but we presume you saw to that. The cure is rest, first of all. Use lint dipped in cold water, and covered with oiled silk as an application, or spread soap-plaster on kid, and apply it. If fluid has formed, paint the part persistently with ordinary tincture of iodine. Relief is sometimes had by dressing the bunion with a lotion made by adding two drachms tincture of arnica to eight ounces of water. Tincture of *Veratrum viride* may be painted on inflamed bunions by way of giving relief.

A. M. A.—Simply nervousness; a common enough case. Use cold sponging each morning, and take a teaspoonful of Fellows' Syrup of the Hypophosphites (thrice daily in a wineglass of water, an hour before meals) for a time.

F. K.—You do not give us any particulars of your food, habits, occupation, age, &c. Without such particulars, we are unable to assist you.

F. W. H.—Try the effect of taking ten drops *Fer Bravais* in water, thrice daily before food, and let us hear how you are after a trial of this advice. It is possible that general treatment may better you in this way.

J. S.—Try the effect of inhaling (for five minutes at a time, twice daily) the vapour of a pint of hot water, to which ten drops tincture of iodine have been added. If the iodine is not successful, substitute a teaspoonful of Friar's Balsam, and add this to the pint of hot water for inhalation. Be careful of cold or chill thereafter.

J. C. G.—Common sense would surely inform you that your cure is a simple matter—namely, by attending to the constipation and by removing digestive disturbance. Read the article entitled "A Valuable Remedy," in Health No. 63, and try the Cascara Bark preparation there recommended (see also reply to "Observer" in Health No. 68). Food to be very light for a time, and make fruits and vegetables part of your dietary. The secretion you alluded to is not what you imagine it to be.

Tholae.—With your case and views we have much sympathy; but there is no need for you to despond in any way. Our advice to you is summed up in that given to "Outis," in Health No. 68. Follow that advice rigidly, and you will get quite well. If you should not feel bettered, however, we shall be glad, under the circumstances, to procure for you a consultation with a physician. Let us hear from you in a month or so, and send name and address. Above all, be hopeful and cheerful. There is no cause why you should not be so.

L. M. N.—Let your food be very light (soups, puddings, milk, and fish) for a time. Take Morson's Pepsine daily with your food (as directed on the bottle), and make fruit a part of your dietary. Rest after food. If not improved, write again. We only send physicians' addresses on receipt of stamped addressed envelope. We should like to add that you must not be nervous or desponding. There is no connection between your dyspepsia and any former habits.

Tenax.—The preparation you inquire about is pink-coloured, and has only a very slight taste when used as directed by being added to water.

Aristotle.—Your questions are rather numerous. We can only recommend you to practise fully and perseveringly the advice given to "Outis," in Health No. 68. Drugs will be of little service to you; your chief hope lies in close attention to your general health. We certainly do not agree with the American opinion you quote; as you state it, the opinion is simply grossly foolish and unscientific. You should in health have no "second sleep," but should sleep soundly all night through. Ergot should never be taken or given save under doctor's orders and supervision.

One Wishful to Know.—You might give the belt a trial. It is a genuine electrical appliance. The Coca preparations are also good, but in your case rest, a holiday, and change of air are the means to which you should look for improvement. No drugs can cure the effects of continuous overwork. If you require a tonic try that recommended to "A. M. A." in present number of Health.

Anxiety.—Try the inhalations recommended to "J. S." in present number of Health. Do not imagine that your former state has anything to do with your present condition, and, above all, be cheerful, and do not give way to despondency.

Ignoble.—You make too much of what is quite natural to most healthy persons. Give up dosing yourself with medicines, which are only weakening, and do not in the least apply to your case. Continue your vegetarian dietary, and remember that what you complain of is not a disease in any sense. You are perfectly healthy, and so long as you exercise your self-control you will be well. Your remedy lies with yourself, and with the exercise of ordinary common sense.

J. Watts.—You must go away for a complete change. Go to Yarmouth, or any other bracing place on the east coast. Continue the tonic (Fellows' Syrup) already recommended for a time. Give up the use of all other treatment. Your best hope of cure lies in a thorough change of air and rest. Glad to advise again, if need be.

Despair.—The remedy will do no harm at least, but we are sceptical of its being efficacious. Try a lead and opium pill, one every night for a time.

A. B.—Try the effect of a vegetarian diet, and let us hear how you are after a trial of this advice, Food to consists largely of fruits and vegetables.

Tee.—You suffer from varicocele. Wear a suspensory bandage and use cold sponging each morning. If you are troubled further, you must see a surgeon. There is no connection between your present trouble and any former state.

Plumstead.—Use an injection of the tincture of the perchloride of iron, half an ounce to a pint of water. Avoid the use of vegetables for a time, and attend specially to cleanliness in all ways.

Anxious Health Enquirer.—Our advice to you, under all the circumstances, is that you should undergo a thorough examination by a competent physician. This is the only course which would relieve your mind, as you appear to be somewhat nervous about your condition. We can send you address on receipt of stamped addressed envelope.

Mansfield.—1. Let the patient rest after food, and avoid tea and coffee, trying milk instead. Vegetables should also be avoided, for a time, at least. Try the effect also of taking a little Morson's Pepsine with food. 2. No dangers, as far as we know, are attached to the practice of eating blackberries. The minute insects which may infest the fruit would have no injurious effect even if swallowed—presuming you mean by "insects," small flies, &c.

J. S.—You are simply nervous. Don't attempt to make any connection in your mind between your present ailment and past

[*Continued on page* 288.

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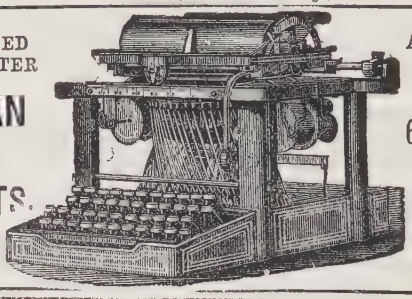

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troubles. Eat fruits and vegetables as part of your ordinary dietary, and for a time take a little Æsculap water each morning on rising. But you should bear in mind that you want more open-air exercise. The latter, and cold sponging each morning, would assist your improvement.

Edward.—Avoid chills, and take lime powders as follows:—Sulphide of lime, twenty-four grains; sugar of milk, half an ounce. Mix, and keep in a stoppered bottle. Take as much as will cover a sixpence every four hours. Try sniffing Alkaram for a simple cold in the head. Avoid chills, and see to your general health, if you are subject to such colds.

Stella.—The general directions for treatment are simply rest, avoidance of exertion (both physical and mental), and attention to general health. You might try the effect of taking fifteen grains bromide of potash, occasionally, in a wineglass of water, when your nervous irritability is great. For the rest, a diet including fruits and vegetables, with avoidance of tea, coffee, and stimulants, should suit you. Glad to be of any further service.

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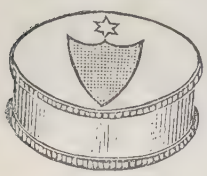

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HEALTH

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, AUG.* 15, 1884.

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Notes by the Way

"Health is the foundation of all our physical happiness."—*Herder.*

THE following extract from one of the "Health Exhibition Handbooks" is certain to be perused with interest:—"Mr. Gladstone is a man about whose physical vigour there can be no question. Men are known in troublous time to cavil at his statesmanship, but no one has anything to say against his digestion. Now as early as the year 1848 Mr. Gladstone formulated to himself rules for chewing food. Previously to that he had always paid great attention to this requirement of nature; but at that date he laid down as a rule for his children that thirty-two bites should be given to each mouthful of meat, and a somewhat lesser number to bread, fish, &c. It is also known that to get into a habit of following his example is as easy as can be. A little attention paid to it for two days will ensure the duty being unconsciously performed through life, with the most beneficial results. Truly, history turns upon small causes! The philosopher of future ages may busy himself with pondering what the course of the world would have been had that number been twenty-two instead of thirty-two."

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THE facts above detailed possess a highly-important relation to the personal health of every individual. There is not the least doubt that perfect mastication of the food is an essential preliminary for healthy digestion. The only persons who will smile incredulously at the statement above-quoted with reference to the Premier's thirty-two bites (or rather "masticatations"), are those who are ignorant of the importance of the work of the teeth in the digestion of the food. Bad teeth lead to the habit of "bolting" the food. It is almost needless to remark that the human stomach does not resemble a fowl's gizzard, and that it possesses no means of performing crushing and dividing operations which are meant to be carried out in the mouth. Such being the case, it follows that the stomach rebels, as best it can, against the reception of masses of food too large for easy digestion; and the initial stages of indigestion are often laid in the habit which thus neglects the proper use of the teeth.

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IF the teeth are defective by nature, or, what is far more likely, if they are unsound through neglect, the aid of the dentist becomes a necessity, in view of the preservation of health. Again, the practice of thoroughly masticating the food, it must be borne in mind, effects another health-saving function in the encouragement of the work of the "saliva," or fluid of the mouth. It is the duty of this fluid to convert the starchy matter of the food into a sugar, and thus favour digestive action. Clearly, the person who "bolts" his food, not merely loads the stomach with masses too large for easy digestion, but likewise tends to shorten and abbreviate the necessary chemical changes which occur to the food in the mouth. On both of the grounds specified, then, the Gladstonian practice of chewing the food thoroughly may be fully justified. The lessons physiological issuing from such a source are, to our way of thinking, quite as worthy of being followed and imitated, as are the political teachings of the time.

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A CORRESPONDENT wishes us to make public a hint regarding the health-dangers attaching to waste-paper and to its common methods of disposal. Waste-paper, says the writer, goes into dirty cupboards, is placed under beds, and thence passes to the rag-and-bone shops, which, in their turn, dispose of it to sorters, who sell the paper to ham-and-beef shops, to buttermen, cheese-dealers, fishmongers, butchers, and others. That the migrations and adventures of waste-paper are not above suspicion from a sanitary stand-point is, we imagine, an undeniable fact. A remedy for this state of affairs would, however, be difficult to find. Waste-paper is essential for the conduct of many businesses and trades; and we imagine the source of supply cannot always—or, indeed, in any case—be traced. Here, again, the educated common sense of the public is the only means of preventing the spread of disease. If people who sell, and those who deal in, waste-paper, would take care to see that no diseased condition is allowed to come in contact with the paper; and, above all, that it is kept in a clean condition, such a state of matters as that of which our correspondent complains would be abolished.

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A HIGHLY-UNSATISFACTORY condition of affairs was recently disclosed at a coroner's inquest held in London, on the body of a little girl aged ten years, who died from malignant scarlet fever. The evidence showed that for eight or ten years no water had been supplied to the closet of the house, situated in Gray's-Inn-passage. The house itself adjoined a dairy. At the back of the house is a Board-school, the closets of which, said the Sanitary Inspector, "were in a very bad condition." The mother of the deceased deposed that the closet of the house was situated "under the passage, near the street door. The cistern was at the top of the house, and if they wanted to throw any water in they had to carry it down sixty-two stairs." The combination of insanitary horrors detailed at this inquest led the jury to note that the death was accelerated by the defective surroundings of the little patient. They also deemed it desirable that the attention of the London School Board should be called "to the insanitary state of the closets on their premises, which were defective through not being kept clean."

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COMMON SENSE will tempt people to inquire if the eyes and noses of teachers and janitors were incompetent to discover the nuisance thus ventilated? Matters may be, and are, disgracefully neglected in the homes of the poor, it is true, but there can be no excuse for allowing School Board premises to lapse into a state of nuisance. "Health" and "Education" should always go hand-in-hand, as in the programme of the Health Exhibition. We trust the School Board of London will thoroughly inquire into the sanitary state of the school in question, and visit with the full weight of their authority the neglect which, according to the report before us, that

establishment must have exhibited to the eyes of the Sanitary Inspector.

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We extract the following from the *British Medical Journal*:—"Members of the medical profession, who have with reason made frequent complaints of the unprofessional advertisements appearing in the daily newspapers, will be glad to learn that, so far as the Royal College of Surgeons of England is concerned, an important step has just been taken, calculated to check those practices, by the removal, by resolution of the Council of the College, at a meeting on the 5th instant, of one of its members, namely, Mr. George Washington Evans, who has, after careful inquiry and due deliberation, been judged by the Council to have been guilty of an offence against the by-laws of the College by the issue of advertisements and pamphlets declared to be 'prejudicial to the interest' and 'derogatory to the honour of the College,' and 'disgraceful to the profession of surgery.'"

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On the individual case which has been thus treated, we, of course, make no comment. The principle involved in the severe measures which the College of Surgeons has adopted is, however, in our opinion, a correct one. For qualified medical men to advertise themselves in the public journals, is a practice for which no adequate reason can exist, and which savours of a species of quackery, that becomes doubly offensive because it is perpetrated by a presumably well-educated man. The quack, pure and simple, living on his wits, knows that his sole hope of attracting customers lies in "bold advertisement," and the common sense of the public estimates him at his true worth. But the educated physician is placed in a position of trust, which his college or university is entitled to see he will not abuse. The public safety demands that quack practices shall be suppressed, and the public must look to the examining and degree-granting bodies of the kingdom for the extinction of the practices in question. There exists at present a notorious case in the north, to which the attention of the Scottish colleges might with advantage be directed.

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Recently, a correspondent of Health handed us a quack circular which had been given him in the streets of Glasgow. We transmitted the circular to the Superintendent of the Glasgow police, who has, of late, been energetically engaged in the repression of this nuisance. We are gratified in being able to say that our efforts in this case have again been rewarded with success. A letter from the Chief Constable, dated Aug. 6, informs us that the man Joseph Saffry, who was employed by Heald (the author of the circular in question) was brought before the magistrate that morning in the police-court, and fined 40s., with the alternative of fourteen days' imprisonment, for circulating the leaflet on the streets. The fine was paid by Heald, Saffry's employer. This sharp practice will rid the community in time of a thorough pest of modern society. When the provinces are leading the way in this matter, "Why," to use the language of the ditty, "should London wait?"

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Several extremely interesting publications have lately come to hand from the Medical Department of the Local Government Board. Thus, the reprint from the Cholera Reports for 1865-66 and 1873 is worth perusing at the present juncture. This report costs only fourpence; and may be had from Knight & Co., 90, Fleet-street, London: or from Shaw & Son, Fetter-lane; Haddon, Best, & Co., West Harding-street, Fetter-lane; and King & Son, Canada-building, King-street, London, S.W. The other reports of the Department can also be obtained from these firms.

Original Essays

"Life is not to live, but to be well."—*Martial.*

THE ELECTRIC LIGHT ON THE BATTLE-FIELD.

The mind can conceive few positions more appalling than that of the wounded soldier upon the field of battle when darkness has descended, cutting him off from his comrades, and depriving him of any assured hope of succour until the morning. We are all familiar with the figure of the surgeon wandering over the field, accompanied by his orderly bearing a lantern which feebly illuminated a small circle immediately around the bearer, but only cast all else into deeper shade; fortunate was the man who still had strength enough to hail the little party, but how many, too weak to cry out, were unable to attract attention and were passed by unseen in the gloom.

Dr. Baron Mundy, who organised for the Austrian Langue of the Sovereign Order of the Knights of St. John, the magnificent railway ambulance train, which is a model of what experience and thought, backed by unlimited resources, can accomplish for the diminution of the sufferings of the wounded, took advantage of the International Electric Exhibition, held in Vienna in 1883, to demonstrate for the first time the advantages which might accrue from the use of the electric light to illuminate the field after an action had been fought. The experiment was so far successful, in spite of a foggy night, as to encourage the National Society for Aid to Sick and Wounded in War to provide the necessary funds for bringing over to this country the electric light wagons. Baron Mundy was very anxious that this might be done while the International Health Exhibition, one of the departments of which is devoted to the illustration of ambulance appliances, was open. Accordingly, on the evening of Thursday, July 24, a demonstration was given at Aldershot before a considerable number of gentlemen specially qualified to judge of the efficiency of the new method. Under the direction of Dr. Gilborne, the Surgeon-General at Aldershot, the management of the experiment was undertaken by Surgeon H. R. O. Cross, and, thanks to the exertions of this able young officer, well seconded by Surgeon Conolly and the men of the Army Hospital Corps, a most interesting demonstration was given.

The apparatus consisted of a small steam engine drawn by horses, a dynamo-electric machine and a lamp mounted on a movable stand, and furnished with specially-designed arrangement for projecting and distributing the light. The lamp could be carried in the waggon, or could be moved short distances by hand. The steam-engine was of three horse-power, and the dynamo was of the Gramme type. The lantern, which was connected with the dynamo by about fifty yards of insulated wire cable, was drawn up on the rising ground immediately to the east of the Cambridge Hospital; a battle was supposed to have been fought on Redan-hill, and a bearer column of the Army Hospital Corps was on its way to succour the wounded, who, to the number of a hundred, were scattered over the hill-side; about half a mile from the hill, at a convenient point on the road, the ambulances halted, forming a collecting station, the electric-light was then directed on to the hill, and the bearers immediately proceeded to make

Scott's Midlothian Oat-Flour.—There is no preparation which can be assimilated with greater facility than such a flour as this. Those who suffer from indigestion might substitute for their ordinary breakfast materials this flour, prepared according to the recipe given by Messrs. Scott and printed on the tins.—Ed Health.—[Advt.]

a systematic search. The light was found very efficient for this purpose, for which indeed it was primarily intended, and was also sufficiently strong to allow of first dressings being applied; owing to some imperfections in the apparatus, however, it several times became extinguished. The wounded men having been found and dressed, were carried on litters, in cacolets, or on stretchers, to the collecting station, and placed in the ambulances, upon which the beams of the electric-light were now directed; the ambulances, lighted on their way, then proceeded to the dressing-station, which was supposed to have been detached from the bearer-column as it approached the field of battle; at the dressing-station, any operation immediately required would, in actual war, be performed, and permanent dressings applied; the wounded would then be conveyed by the second line of ambulance wagons to the movable field hospital.

The demonstration was undoubtedly a most successful and interesting experiment; the light could be thrown as far as two miles, and on the Redan-hill was very brilliant; but in the more important particular of the amount of space actually covered at any one time, it appeared to be somewhat deficient. The extinction of the light on several occasion, attributed by Baron Mundy to some slight want of attention to oiling the machinery, shows plainly how delicate the apparatus is, and probably indicates that many improvements in detail must be made before the electric light can be of practical use on the battle-field. But the experiment was a move in the right direction, and was a good illustration of the enterprise and growing *esprit de corps* of the Army Medical Department, which, through many discouragements and much misrepresentation, is slowly winning its way to more generous public recognition. Volunteer Hospital Corps have been founded in London and other places, and the movement is already growing, and young men who join have the advantage of a double training; they are trained in the ordinary military drill, and also learn from the special ambulance drill much that must be of use not only in war but even in the piping times of peace.

PUBLIC PARKS AND OPEN SPACES.

By George Howell, F.S.S.

SEVENTH PAPER.

Under the provisions of the general public Acts before quoted, various other commons and open spaces have been preserved to the people of London, some of which are vested in conservators appointed under local or special Acts, or in the Vestry of the district in which they are situate, or in the Local Board having jurisdiction. Some of the commons and opens spaces thus preserved for the benefit of the inhabitants and of the public generally, may now be enumerated:—Wimbledon Common, consisting of about 1,000 acres, was secured by the Wimbledon Common Act, subject to certain restrictions, and is under the management of conservators. Barnes Common, 135 acres, 15 of which, however, have been absorbed by a railway, was secured under a scheme of the Inclosure Commissioners, the maintenance and management of which are confided to conservators appointed by the Vestry of Barnes and the lord of the manor. Putney Lower Common and Heath are preserved and protected by the Wimbledon Common Act, and are under efficient management. The following have also been preserved under schemes confirmed by the Inclosure Commissioners, and approved by Parliament:—Hayes Common, in Kent, 200 acres; Ealing Common, 50 acres; Staines Common, 353 acres; Acton Common, 12½ acres; Chiswick, 21½ acres; and Tottenham, 48 acres. These are all protected under the Metropolitan Commons Acts, 1866 and 1869; the total area of open spaces thus preserved and protected under the fourteen schemes of the Inclosure Commissioners approved by Parliament, to the end of 1882, is 1,672 acres. The Addington Hills, in the neighbourhood of Croydon, Surrey, have been purchased by the Local Board of Health for a moderate sum, and are consequently preserved to the public. These hills are beautifully situated within easy distance of the metropolis, and are in many respects admirably adapted for the purposes of recreation. The several attempts at inclosure aroused public feeling in the locality, and ultimately led to their purchase by the local authority. Camberwell-green was enclosed, laid out, and planted by the Camberwell Vestry, and, though small in extent, is an attractive little park for the locality—much frequented and enjoyed by children. Islington-green and Paddington-green are further examples of local effort in the same direction, both having been enclosed and planted by the respective vestries of the districts, and are now pleasant health-resorts for the young—more particularly of the locality. Drayton-green and Haven-green, both in the parish of Ealing, and Wood-green, in the parish of Hornsey, were threatened with partial destruction by railway schemes in the Session of 1878, but by the prompt action of the Commons Preservation Society, sustained by local effort, no very serious injury to these open spaces was permitted.

Numerous commons and open spaces still remain unenclosed within the boundary of the Metropolitan Police district, over which the Metropolitan Commons Act, 1866, extends, several important and extensive areas of which are not yet under definite management, and scarcely out of danger, though it is hardly possible for any of them to be now inclosed, by reason of the strong opposition which is sure to be evoked by any attempt at inclosure or spoliation. Among the more important ones may be mentioned the group of downs and heaths at Banstead and Epsom, and the splendid expanse of Walton Heath; the Banstead commons alone comprising some 1,340 acres. Epsom Downs are tolerably secure on account of the races, for which they are famous, the Derby and the Oaks being world-renowned; but Banstead Downs have been and are threatened. The action of the lord of the manor is, however, being strenuously resisted. Mitcham Common was in the session of 1877 the subject of a twofold attack, first by the London and Brighton Railway Company, which proposed cutting a line through it and taking eight acres for that purpose, and secondly by the Croydon Local Board, which sought to convert 100 acres of the common into a sewage farm. Both projects were opposed and defeated. It is one of the largest commons in the metropolitan district, is exceedingly pleasant as a healthy resort, and easy of access; but it still remains without efficient protection of any kind. Hackney Marshes, from 300 to 400 acres in extent, consist almost entirely of Lammas lands; and these are at present without any regulation in the public interest. There are several other extensive commons and open spaces, such as the commons at Esher and Morden, in Surrey; the beautiful commons of Chislehurst, Bexley Heath, and St. Paul's Cray, in Kent; Riddlesdown Hills

A Valuable Invention.—It is gratifying to learn that Mr. R. Adams, of 17, Blackman-street, London, S.E., whose fanlight-openers and silent door-springs are being extensively used, has received large orders for his Patent Reversible Window. The sashes, although they slide up and down in the usual way, can be instantly turned inside out, enabling anyone to clean each side of the glass with ease, while standing in the room.—[Advt.]

and Caterham Hills, in Surrey; Box Hill, Leith Hill, Reigate Hill, and various heaths and commons adjacent, also in Surrey; and, north of London, in Middlesex, Totteridge Common, Hadley Common, and Hadley Wood; Winchmore Hill and Wood; Mill Hill and Highwood Hill; Stanmore Heath, Enfield Chase, Hounslow Heath, and numerous other open spaces. But many of these are not in any present danger as to inclosure, though some of them may suffer from encroachments which may involve difficulties, and perhaps litigation, at some future time.

Under the Gardens in Towns Protection Act, 1863, 26 Vict., c. 13; the Metropolitan Open Spaces Act, 1877, 40 and 41 Vict., c. 35; and the Amending and Extending Act of 1881, 44 and 45 Vict., c. 34, various small squares, greens, and other open spaces, and disused burial-grounds have been acquired and preserved for the use of the public, or the right of user has been obtained. The Kyrle Society, as well as the Commons Preservation Society, is indefatigable in its efforts to preserve such open spaces as are available either as recreation grounds, or as simple breathing grounds, or both combined. By the united or separate action of these two bodies, aided by local effort, some additional open spaces have been secured. Among others, may be mentioned the Poplar Recreation Grounds, Stepney Green, Vincent Square, thrown open by the Duke of Westminster; Lincoln's Inn Fields, opened under certain restrictions by the Trustees of Lincoln's Inn; Temple Gardens, thrown open by the authorities in whom the property is vested; the site St. Mary's Church, Newington, and the disused burial-ground belonging to the church, at Newington Butts; Old St. Pancras burial-ground and churchyard; St. Olave's, at Southwark, and several other similar spots in densely-populated districts, all of which are made attractive, and some almost beautiful, by planting and cultivation. Another public body has recently been started, called the Public Garden Association, with the view of providing further breathing and recreation grounds in London, its first work being directed to the throwing open of a large piece of land attached to Lambeth Palace, belonging to the Archbishop of Canterbury, and now enclosed by a high wall. This act of grace, by his Grace the Archbishop, would do more for the poor of Lambeth than many learned sermons.

The crowning piece of legislation as regards commons and open spaces, in so far, at least, as the Metropolis is concerned, was that which secured to the inhabitants for ever, all that remains of the once magnificent stretch of woodland—Epping Forest and Hainault Forest, and the various lands adjoining thereto. Up to a very recent date (1851) fully 6,000 acres remained unenclosed. In less than twenty years over 3,000 acres of the open forest were inclosed, and more than 300 acres were covered with buildings and gardens. In the year 1864 and 1865 the series of piecemeal encroachments culminated in the enclosure of the whole of the forest waste in the Manor of Loughton, comprising about 1,200 acres. Of this area the Lord of the Manor appropriated 900 acres, and some 300 acres were divided amongst certain copyholders and freeholders in the manor, with the view of disarming opposition, or of minimising resistance as far as possible to the extensive inclosures then being carried on. But the lord, and his tenants and neighbours, reckoned without their host.

(*To be continued.*)

COCA OR CUCA LEAVES.—The new stimulant, gives renewed life and vigour to the *Weary* and *Overworked*. Dr. Blunt, of Northampton, says:—"The recuperative powers of this restorative are truly astounding." Sample packets, together with medical and scientific opinions, 13 stamps, post free, from J. T. Marks & Co., 17, Newcastle-street, Farringdon-street, E.C.—[Advt.]

THE TRICYCLE, AND ITS RELATIONS TO HEALTH.

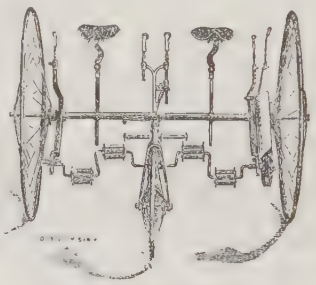
By Sigma Smith.

VII.—THE CHOICE OF A MACHINE (*Continued*).

Sociables.

One great complaint against the bicycle, has always been that it is such an unsociable machine, being only adapted for the one rider, but this cannot be said concerning the tricycle, for so soon as the three wheelers began to come into favour, the makers saw that it would be quite possible to build machines upon which two riders, a man and his wife, or his son, or daughter could ride together. The first form of this class of machine took the shape of the Sociable side by side machine, a sketch of which was given in No. 65 of Health, but other makers soon produced double machines that could scarcely be called Sociables inasmuch as the two riders had to sit back to back.

The side-by-side Sociable is a truly charming mount, and this form has been produced by the majority of the makers. The two occupants sit most comfortably together, and are able to carry on a conversation as they travel. In some machines the male rider is placed on the near side, with the steering-handle in the centre, but in the Premier



The Meteor Sociable.

Sociable the gentleman sits on the off-side, steering with his right hand. There are obvious advantages in having the one who steers on the off-side, especially when threading the vehicular traffic in the streets, and in this particular the Premier tricycle has a considerable superiority over other Sociables. The change in the position of the rider, so that he can sit on the right, is brought about by a very ingenious arrangement of leverage.

The object sought to be achieved by the makers of Sociables is to have a clear open front on either side, so that the riders may step in and out without hindrance, and to do this the ratchet steering-rod has to be carried along the middle, hence it is difficult to arrange otherwise than to place the steering-handle on the right-hand side of the *near* rider.

The best side-by-side Sociables are the Premier (Hillman, Herbert, & Cooper), the Cheylesmore Sociable, the Rucker, the Meteor, made by Starley & Sutton, and the Salvo (Messrs. Starley Bros.) Sociable.

All alike are excellent machines, and very reliable.

The Meteor is highly spoken of, and I have had many a pleasant ride upon it. My machine was, however, far too weighty, but still it ran well. The current year's pattern is much superior and lighter, and having small 40 in. wheels, is very stowable and convenient, and exceedingly strong and durable. I have also had some pleasant rides

Swimming and Ling's Swedish Exercises.—Mrs. Florence Williams, Certificated Teacher. Schools and private families attended.—The Crown Baths, Kennington Oval, S.E.—[Advt.]

on a Coventry Machinist Cheylesmore, on one occasion taking part in a club-race of twenty-five miles upon it, which we managed to ride in two hours and ten minutes, although we did not win.

The Salvo is a machine that goes easily, and is almost as strong as an ordinary dog-cart.

[We should like to add our recent experiences of the "Meteor" Sociable of Messrs. Starley & Sutton, figured on the preceding page. The machine in question is a 40-inch, light-built tricycle, steering with the right hand, width 5 feet 3 inches, and thus capable of being got into the guard's van of any train. On a recent journey, two light riders ran with this machine from Highgate to Barnet, climbing the well-known hills on that route with singular ease. Another journey to Epping Forest (High Beech) was undertaken with this machine, the tricycle behaving perfectly, and going easily and smoothly, whether on paved or macadamised roads. In both journeys the "Meteor" was accompanied by a Sociable of another make, with 46-inch wheels, but, notwithstanding the larger wheels of the latter, it was beaten in hill-"flying" by the little "Meteor," which thus fully justified its name in every way. The "band-brake" gives a feeling of perfect safety in "flying" hills, as its use stops the tricycle easily in its own length, and when applied with care, arrests the vehicle without shock. So thoroughly pleased are we with the Sociable now in use, that we are able to recommend the "Meteor" to all desirous of possessing a strong, light, and reliable tricycle.—Ed. H.]

A LIGHT supper, a good night's sleep, and a fine morning have often made a hero of the same man who, by indigestion, a restless night, and a rainy morning, would have proved a coward.—*Chesterfield.*

A NEW PROCESS OF MUMMIFICATION.—The method which is described by M. C. Depérais in the *Gaz. Méd. de Paris*, No. 9, 1884, consists in placing the body in a solution of chloride of calcium (47° Beaumé), maintained for some time at a temperature of 106° C. (228°·8 F.). The water of the tissues is gradually replaced by the solution, and the process is accompanied by a distinct shrinking of the corpse, which is then placed in a cold saturated solution of sulphate of soda. Sulphate of lime is formed and remains in the tissues, while the chloride of sodium is dissolved by the water. The body can then be taken out and dried in a stove.

THE *Leisure Hour* lately gave an interesting article on physicians, in which, alluding to the medical men of Queen Anne's time, it is stated that no physician with the slightest pretensions to eminence could get through his work without a carriage drawn by four horses. Aspirants to medical eminence soon began, as a matter of course, to puff themselves into note by the grandeur of their coaches and the excellence of their cattle, and to vie with undeniably successful doctors in the quality of their horseflesh, carriages, and liveried servants, provoking thereby from the same doctors of indubitable success many bitter sarcasms and cynical prophecies. At this time, too, the doctor retained the oldest of all his official insignia—the cane that may have come to him from the staff of Hermes, the caduceus of Mercury, or in unbroken succession from the wand of Æsculapius. Wherever he was encountered, the man of medicine was recognised by the cane he held in his hand, and which in nine cases out of ten was fitted at the top with a vinaigrette charged with aromatic essences that were regarded as of sovereign efficacy against the poisonous fumes of patients stricken with plague or any other virulent fever.

The Family Circle

"The child is father of the man."—*Wordsworth.*
"In bringing up a child, think of its old age."—*Joubert.*

SCARLET FEVER: HOW TO LIMIT ITS CONTAGIOUSNESS.

By W. ALLEN JAMIESON, M.D., F.R.C.P.
Lecturer on Diseases of the Skin, Edinburgh School of Medicine.
(From the *Edinburgh Medical Journal*).

II.

WHEN an individual contracts scarlet fever, when he catches its infection, the first symptoms are manifested in the throat; the second, within a few hours after, in the eruption of the skin. Now, though we cannot disinfect the air which surrounds him, we can, by the employment of suitable antiseptics, disinfect his throat, and thus prevent the infectious particles from being taken up by the breath which he expires from his lungs. We can in the same way disinfect his skin, and thus render the scales thrown off in the process of peeling, which takes place during his recovery, innocuous. We can thus prevent the air of the chamber in which he lies from ever becoming charged with the floating poison, which is much better than were we to endeavour to destroy this poison after it has become diffused in the atmosphere. The latter method is certainly a very roundabout one. In general, the clothes, the bedding, all he had touched, all round about him during his illness, have been carefully fumigated, and otherwise cleaned, purified, and destroyed, after he became well; but too often the patient himself, the source of all the danger, has been forgotten, as far as employing precautionary measures for the protection of his attendants and others from the commencement of his illness and through the whole course of his complaint.

What, then, can be done in this respect? The development of the eruption should be promoted by warm baths, and the congested skin should be soothed and kept soft and pliant by their means throughout. Warm baths should be used from the very first. There is quite a consensus of opinion that it is a symptom of good omen when the rash appears freely, and its evolution is facilitated by a hot mustard bath. Afterwards a simple warm bath, at a temperature of from 95° to 98°, should be employed nightly. The patient may recline in a hip bath, and have the water laved over him, or be laid out at length in a long narrow bath, with the head supported. This latter plan obviates the chance of faintness or giddiness, sensations which are sometimes complained of. When the skin has been rapidly dried, the sick person should be at once replaced in bed, and the whole body and limbs, and the head, which has not been wetted, are to be anointed with a medicated ointment, which should be gently smeared over the surface. This prolongs the cooling effect of the bath; and while, by its oiliness, it lessens the production of the

MEDICAL AND SANITARY EXHIBITION, 1881.—REWARD OF MERIT.—INTERNATIONAL HEALTH EXHIBITION, 1884.—Stand 69.—DIABETES. Van Abbott's Gluten Bread, and all other suitable Foods for Diabetics, Dietary Table, Menu, Cooking Receipts, and Price List, post-free on application. DELICATE CHILDREN. Van Abbott's Hypophosphite of Lime Biscuits, for Children suffering from Debility, Deficiency of Bone, or Ricketts. See the *Lancet* and HEALTH. CONSTIPATION. Van Abbott's Bran Biscuits. DYSPEPSIA. Van Abbott's Malt Biscuits. Van Abbott's Vegetable Bread and Milk, Saccholac for Infants, Imperial Granum, Rolled Avena, and all American Cereals for Infants and Invalids. Hathorn Table-Water direct from the Springs in Saratoga, U.S.A. G. VAN ABBOTT, 5, Princes-street, Cavendish-sq., London, W.—[ADVT.]

dry scales, it renders at the same time those which are cast off harmless. The use of an antiseptic ointment during the stage of desquamation, or skin-peeling, is nothing new; but its employment from the very first, in conjunction with warm baths, so as to anticipate the development of the infectiousness of the scales, has not, I believe, been previously advocated. That which I have found best suited for the purpose is one composed of thirty grains of carbolic acid, ten grains of thymol, one drachm of vaseline, and as much simple ointment as will make the whole up to an ounce. The thymol should be dissolved by the aid of heat, as its crystals are apt, otherwise, to irritate the skin. So prepared, the odour is not unpleasant, while it retains its greasiness for a considerable time after being applied. It should be smeared on in the morning as well as at night, after the bath. When the patient is well enough, one or two thorough washings with carbolic-acid soap, in which process the hair and head should be included, will remove any lurking traces of infection.

For the throat we now possess a remedy thoroughly efficient, and at the same time safe. The whole of the back and sides of the throat and tonsils should be brushed three or four times a day with a saturated solution of Barff's boroglyceride in glycerine. This is at least three times as strong as a saturated solution of boracic acid in glycerine. When painted on the inflamed throat it causes no pain, and the taste is not complained of even by young children. The inside of the nostrils may be similarly treated if there is any nasal catarrh.

All bed and body linen, handkerchiefs, and everything which can be washed, which the patient has used, should be put into a tub containing one large tablespoonful of carbolic acid dissolved in the water with which it is filled, so soon as they are removed from his person. In this way they can be carried from the room without any risk of their spreading the disease to others, and washed by any one without danger.

(*To be concluded*).

Purification of Water by Motion.—A discovery has been made by Dr. Pehl, of St. Petersburg, which promises to have a very important bearing on many industrial processes. The water of the river Neva is very free from bacteria, having only about 300 germs in a cubic centimètre. The canals of St. Petersburg, on the contrary, are infected with bacteria, their number reaching 110,000 in a cubic centimètre, even during good weather. The same is true with regard to the conduits of water for the supply of the city. While the chemical composition of the water passing through these city conduits hardly differs from that of the Neva (by which they are supplied), the number of bacteria reaches 70,000, against 300 in the water freely taken from the river; and the worst water was found in the chief conduit, although all details of its construction are the same as in the secondary conduits. Dr. Pehl explains this anomaly by the rapidity of the motion of the water, and he has made direct experiments in order to ascertain that. In fact, when water was brought into rapid motion for an hour, by means of the centrifugal machine, the number of developing germs was reduced by 90 per cent. Further experiments will show if this destruction of germs is due to the motion of the mass of water, or to molecular motion. If this discovery of Dr. Pehl's be confirmed, it will become possible to destroy bacteria, and render a water comparatively pure simply by passing it through a centrifugal machine. The subject is of special interest to brewers, who suffer, perhaps, more than any other manufacturers from the attacks of bacteria.

Our Papers on Popular Science.

"Blessings on Science! When the Earth seemed old,
When Faith grew doting, and our reason cold,
'Twas she discovered that the world was young,
And taught a language to its lisping tongue."
—*Charles Mackay.*

ELEVENTH PAPER.

HEAT.—VI.

By Edward H. Riches, LL.D., F.R.S.

From what has been already explained as to the conduction of heat, it will be clearly seen that, in the matter of the various materials used for making our clothing there is no positive warmth within the materials themselves. In fact, though the temperature of a blanket and sheet would appear to be different, it is not really so; the temperature or warmth of both is the same exactly. A material is regarded by us to be warm or cold according as it impedes or facilitates the passage of heat to or from the surface of our skin; just as a piece of ice may be preserved when wrapped round with flannel. So the thick overcoat which protects us from the cold of winter may also be used to save us from the heated rays of the sun in summer; but, of course, the thick overcoat is not admissible in warm summer weather, because the extra exertion consequent upon moving about with the additional weight of the garment would produce an amount of heat within which could not readily escape; at the same time in theory and as an illustration for our purpose, what is stated above holds good.

There is one further remark which we may make as to the conduction of heat, and it has reference to the fact that air, although really of the same temperature as tested by the thermometer, will feel colder or warmer to us according as a wind be blowing or not. And the reason why this is so, is because, when the air is in motion by the action of the wind, it will always conduct heat from our bodies much faster than when the air is at rest. We have already remarked that air and fluids are bad conductors of heat, and it is the mode by which heat is imparted to them which is termed *convection;* and the way in which, by convection, heat is imparted, may be readily understood thus: If a particle of water be heated above the surrounding particles, we know that it expands and rises, and thus it is by contact with the particles immediately above it that the increased temperature contained in it is communicated to those particles.

The fact of liquids being bad conductors of heat is owing to the mobility which subsists among the particles of all liquids, and also to the fact that a change of size is generally brought about by a variation of temperature. And it may not be uninteresting to notice here how it is, exactly, that water is made *hot.* Let us take any vessel containing water, and we shall find that as heat enters at the bottom of the vessel, there will be found at once to be *a double set of currents* produced,—one current being that of the *hot* particles *rising* towards the *surface* and the other current being that of the *colder* particles *descending* to the *bottom;* and it is by the motion of the particles among each other that heat is diffused, the heated portion of the liquid continually mixing itself with the colder portion.

International Health Exhibition. — Eastern Gallery. — No More Dark Rooms in Daytime. — Use Chappuis' Daylight Reflectors. 30,000 are fitted in London alone. They supersede gas or lamplight in daytime, and promote health, comfort, and economy. They are also used as screens or blinds, and at the same time as daylight diffusers. For prospectuses send two stamps to (H.) Chappuis, 69, Fleet-street.—[Advt.]

There is a simple experiment which at once shows that water is a bad conductor, and it is this: if a little alcohol be poured on to the surface of water at 32° F., and lighted, it will burn on the water, while if a thermometer be immersed at a little depth below the common surface of the alcohol and the water, it will fail to disclose any increase in temperature. And the reason why liquids become hot by *convection*, and solid bodies communicate heat by *conduction*, is that, in the case of solid bodies, the constituent particles of the same being incapable of changing their material position and arrangement, the heat can only by a slow process pass through them from particle to particle, while the particles which form the stratum of any liquid being heated, the mass of these particles expanding becomes lighter than those composing the colder stratum above, and it ascends, allowing the stratum above to descend. The conducting power of *air* is even less than that possessed by *liquids;* and the reason why spirits boil more quickly than water is because the particles of the spirits are more free to move, and thus transmit heat more rapidly than the particles of water. In our next paper we shall pass on to some simple facts in connection with *radiated heat;* and, even thus far, we must remember that all the laws of heat are, to some extent, at work within our physical organisms, and that the cause of animal heat is owing to the chemical changes which are going on in the nutrient fluid of our bodies.

THE FOOT AND ITS COVERING.

The mention of one part of the human frame which labours under developmental difficulties, and which is sorely hindered by impediments, reminds of another part which is even worse circumstanced. The well-formed human foot may be regarded as Nature's last and hardest, and not least beautiful, work. It is the most characteristic feature of the human body, that to which man owes his erectness and firmness of gait, and his ability to use the hand as the minister of his will. Even under favourable circumstances it attains perfection only in the higher groups of the human family, and in them fails to do so more often than any other part of the body. The compact, well-formed arch, the slightly-spreading and gracefully-curving supple toes, which give firmness together with spring and elasticity to the step, are comparatively rarely attained; and what atrocious impediments are thrown in the way of their acquiring and maintaining their proper form! The foot confers, as I have said, much upon the hand, and ill deserves the return made to it.

How pretty is the infant foot, graceful in outline, supple, free, and varied in its movements. It has the hard task before it of being the unaided weight-bearer and propeller of the body reared erect and at right angles upon it—a task which it alone in the animal world attempts, and for which an exquisite mechanism is required and provided. Accordingly, it is forthwith hindered in its proper growth, crippled, deformed, stunted, and weakened by bad-fitting, unyielding cases constructed with an ill-advised view to economy, or in accordance with a bad and meretricious taste. Never has this been more exemplified than in the odious combination of high heel and compressed pointed toe which transforms beauty to ugliness, curtails the play of the foot, shortens the step, and spoils the gait.

Pure Water is such a vital necessity that, without it, illness is certain. None are more prone to the ill effects when impure than the young. To ensure a pure supply send a post-card to the London and General Water Purifying Company, Limited, 157, Strand London, W C., who will return particulars post-free.—[Advt.]

We regard the Chinese foot as the *ne plus ultra* of barbarism in fashion, and we think of it with wonder and horror. But, be it remembered, that foot is not intended to do work. It is unfitted for duty, and it is relieved from it. The Chinese lady is not to be subjected, like common folk, to the undignified trouble of walking about; and her feet are therefore superfluous. The Chinese must regard our fashion as even more absurd which cramps the feet and yet expects them to do their work, which takes away the straw and yet requires the tale of bricks. Still fashion will have its sway, and will bring its penalties in flat feet, crooked toes, and corns; and these, besides the direct suffering and trouble they induce, by interfering with natural exercise and movement, weaken the whole body, and lead to a variety of secondary ailments. Indeed, swathers and tight shoes may well be regarded as among the insidious and fertile sources of disease.

Peculiarly it is the case in this island with regard to the foot; for, if I mistake not, our countrymen, well cared for by Nature in this respect, are, with regard to it, the greatest offenders against Nature; and these offences in the matter of the foot are among the most prejudicial of their kind. The tattooings and nose and lip-borings of various Indian tribes, and the head-flattening of others, which we stigmatise as barbarous, are not so damaging as the foot-spoiling so common among ourselves, and especially among our agricultural poor. The straight, firm great toe, the high-planted arch, the well-developed calf—three specialities of man, without which he cannot walk and run as he ought to do—are too commonly made, during childhood, to degenerate into the obliquely slanting toe, the flat foot, and the puny calf. The hobbling, hesitating gait is substituted for the firm, bold step. We must proportionately suffer in the race of life, and shall infallibly find out the disadvantage to our cost whenever we come to be matched in the military march against a better-shod and better-footed people.—*Professor Humphry.*

Non-Fermenting Cherry Tooth-Paste.—Finely-powdered pumice-stone, two ounces; powdered orris root, two ounces; powdered myrrh, half an ounce; honey, four ounces; liquid cochineal to colour, q.s.; oil of cloves, half a drachm; essence of lemon, one and a half drachms; otto of rose, eight drops. Mix well.

Children's Clothing and Sunlight.—Children's clothes should always be arranged for keeping up an even warmth; at present their vestments are chiefly heaped around the middle of their body; surely here a scheme of redistribution is urgently needed. The sight of a little child on a treacherous day in March or November is often a sad one: he may be seen in a cold-looking cotton frock cut low in the shoulders and high in the arm, whilst the little strip of a sleeve is made narrower yet by being tied up with ribbon; thus much of his delicate body is left cruelly exposed. The effects of this wicked, silly fashion, are baneful enough in the upper classes, whence it probably sprung, but the children of the poor suffer from it far more. The nursery should be in the sunniest part of the house, for children, like flowers, love air and sunlight, and Apollo's glorious beams love children's faces, they search them out like peaches on a sunny wall, and form in and beneath the skin a boundless store of health and happiness. To put a sick child's bed in the sun may sometimes do as much good for him as fresh country air. In England people do not seem to know the value of sunlight; the Italians do, however, and their adage runs to the effect that where the sun does not go the doctor does.—*Dr. Owen.*

Public Health

"Health is the first Wealth."—*Emerson.*

HOW TO TEST FOR ARSENIC.

As many of the readers of HEALTH appear to be interested in this question, we have much pleasure in acceding to Mr. Henry Carr's courteous request that we should reprint his description of "Reinsch's Test" from his "Domestic Poisons." This handy little book may be had from Mr. Ridgway, 169, Piccadilly, London, W., price one shilling.

Mr. Carr says:—The desire to have wall-papers, furniture, dress materials, &c., free from arsenic, now influences the public to a great extent, and when making purchases, especially of wall-papers, the question is asked, Is this free from arsenic?—the assurance that it is so being given too much as a matter of course. The difficulty felt by the general purchaser is how to ascertain the fact in a manner to be relied upon, and at a moderate cost. The National Health Society has brought out a valuable report on the question of the tests to be used, but their attention has been given more to those suitable for legal proceedings, for the settlement of disputes, and for standard tests to be introduced into Acts of Parliament, rather than to what may be called a popular test, available for those merely selecting fabrics for their own use.

A test for general use must be one which does not require special or expensive apparatus. There must be no danger from explosion, and there must be no generation of poisonous gases; and no special scientific skill should be required, if the test is to be made available to a large extent throughout the country. Reinsch's test meets these requirements, but a modification of Marsh's test is recommended as the standard to be introduced into the proposed Act of Parliament. In some very rare cases Reinsch's may not be so exhaustive a test as Marsh's, but it must be borne in mind that testing for arsenic, for the selection of a wall-paper, is a very different thing from testing in a case of suspected poisoning. The mode of testing by Reinsch's process, as given below, corresponds with Marsh's more complicated test, as described in the Appendix. That is to say, if minute definite quantities of arsenic be introduced and then tested for, the octahedral crystals of arsenious acid obtained will be identical, whether obtained by Reinsch's process or by the modification of Marsh's.

The report of the National Health Society as to the mode of testing for arsenic, to be recommended for all cases of special importance, is founded upon a long and most valuable series of experiments. This report ought to be in the hands of every public analyst and of every scientific chemist, in order that all may be able to refer to one common standard of what is to be permitted as "*accidental and unavoidable contamination*," and what is to be condemned as "*arsenical.*" If any question should arise as to the accuracy of the Reinsch test above recommended, it will be a very simple matter to refer the question to a scientific chemist—the party in error to pay the fee; in such cases it is essential that the portions of paper tested be cut from the same identical piece, and that the report be written on the back of a part of it. The writer had a dispute with a public analyst in the country as to whether a certain drawing-room paper was arsenical or not. It turned out at last that a second printing had been required to make up the quantity needed. The flower in one printing was arsenical, in the other it was free; a sample of one kind was sent to the writer, a sample from the other was sent to the public analyst.

*Mode of testing by Reinsch's process.**—From the paper to be tested cut a piece 4 in. by 4 in., or 16 in. area; all colours must be included, or, if any particular colour be suspected, cut out this colour in sufficient quantity to cover the same area; let the portion to be tested be cut up into small pieces. Place the test-tube in the ring support, insert the paper, add dilute hydrochloric acid (one of acid to four of water) half filling the tube, light the spirit-lamp with a moderate flame, and place it underneath the test-tube.

Take a piece of copper-foil 1 in. by ½ in., brighten it with a piece of emery or glass paper, pass a fine platinum wire through a small hole in the copper foil, and as soon as the contents of test tube boil, insert the copper, noting the exact time, and lowering the flame of the lamp so as to maintain a gentle simmering only. By means of the platinum wire, the copper can be drawn out and examined from time to time as the test proceeds. (Fig. I.)

FIG. I.

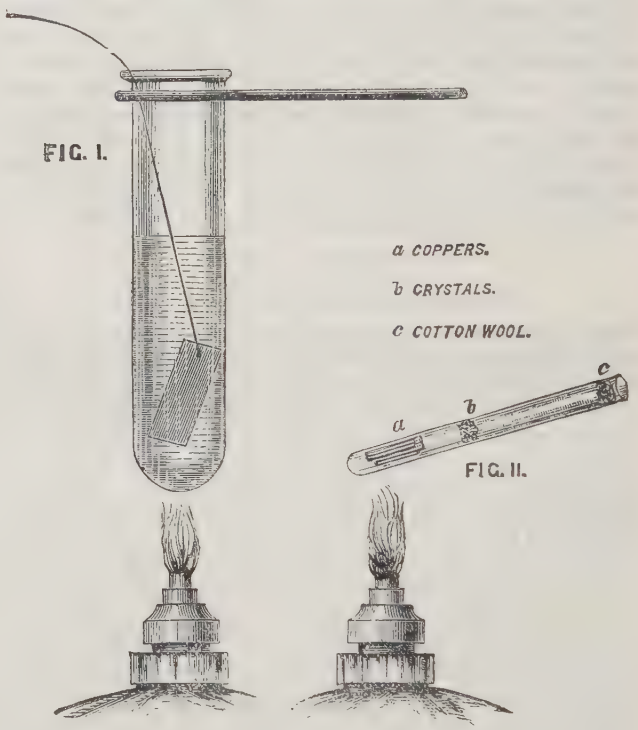


FIG. II.

If there be much arsenic present the copper will be coated almost immediately of a *black* or *dark steel* colour; if less arsenic be present a longer time will be required, varying from half a minute to half an hour, half an hour being the limit of time for boiling; if in that time the copper be not coated all over of a lamp black or dark steel colour, the paper may be accepted, the cases being very rare in which this process does not detect the arsenic. If the copper be coated all over, the paper is in all probability arsenical, though the process carried thus far does not *prove* the presence of arsenic, for this coating may arise from sulphur, mercury, or some few other ingredients which may be present in the colouring matter. The completion of the test is as follows:—Well wash the copper by shaking it in clean water, holding it by the wire or by a small pair of pliers—the copper must never be touched by the hand; dry it first between two pieces of blotting paper, finally by laying it on a strip of thin sheet brass and warming it over the flame of the lamp—direct exposure

* Suitable materials may be obtained from Messrs. Townson & Mercer, 89, Bishopsgate-street Within, London, E.C., either direct or through any druggist. Price 8s. 6d.

of the copper to the flame must be avoided. Take a reduction tube, about 3 in. in length and ¼ in. in diameter, dry it by holding the closed end in the flame till nearly red hot, then slowly pass it forward till the whole is thoroughly heated; taking the copper in the pliers, cut it up with a pair of scissors into such pieces as will pass into the tube; the mouth of the tube should then be closed slightly with cotton wool. Now hold the closed end of the tube containing the copper over the flame of the spirit lamp, gradually increasing the heat; arsenic, if present, will be driven off the copper by the heat, and will be deposited a short distance beyond in the form of octahedral crystals of arsenious acid, which may be examined by a small magnifying glass or in a microscope; if the sublimate consists of octahedral crystals, the discolouration of the copper is due to arsenic. (Fig. II.)

Or the crystals may be sublimed on to a microscope slide in the following manner:—

Take a thin glass tube ¼ in. internal diameter, and 1⅜ in. long, sealed at one end, and lipped like a test-tube at the other. Suspend this by dropping it through a hole cut in a piece of stout sheet-brass or copper, not less than 4 by 1 inches, so that the lip just supports the tube, and place the brass or copper plate on the ring of a retort-stand. Heat the tube nearly to redness, and expel the last trace of moisture, and when cold put the copper strips within, and place over it, resting on the mouth of the tube, a microscopic slide, warmed in a spirit lamp till all the moisture at first deposited has disappeared. Now heat the tube with the spirit lamp, letting the flame play on the under side of the brass plate. In a few seconds a sublimate will appear on the slide. Watch this until it begins to shrink from the edges, and form a patch just the size of the bore of the tube. Remove the lamp, allow the slide to cool, and examine the sublimate with a magnifying power of 220 diameters.

The copper and acid, when first obtained, must be tested by boiling alone for an hour; if the copper then becomes coated at all, either the acid or the copper is not pure, and must be rejected.

Orange-Peel is now said to be collected, dried in ovens, and sold for kindling fires. It burns readily and with great fierceness, and is safer than kerosene.

Vegetarians are taking up the feeding of the children of the poor on a self-supporting basis. A correspondent describes the experiment in the *Daily News*. A room which had a small fireplace with hobs was taken in a King's-cross court at 3s. a week; three saucepans and other cheap utensils were bought; two or three mothers were asked in to help and to learn to cook; a shilling was invested in lentils and vegetables, and 6d. in two wheat-meal loaves. So the dinner was made by the teacher and the mothers, and eaten with relish by the mothers and some fifteen to eighteen children for a week. So far the dinners were free. The mothers were then asked to club together; they were to take the cooking in turn, day by day; one fire was enough, and the cost had been found to vary from 8d. to 1s. for twelve to eighteen portions of a little more than a large breakfast cup each. Accordingly the women are now cooking daily at their own expense the two-gallon saucepan-full either of strong lentil soup, peas-pudding, or sweet porridge. They feed their own children—each woman has three or four—and they have some left, which others in the court buy at three ladlefuls for a penny. One day they fed their party for a shilling, and sold the remainder to a non-co-operator for 2½d.; and "the soup is beautiful."

Recreation and Health

"Health is the vital principle of bliss,
And Exercise of health."—*Thomson.*

HEALTH AND HOLIDAYS.

FOREIGN HEALTH-RESORTS.—VII.

By a Physician.

Eaux Bonnes.—A thermal resort in the Pyrenees, 26 miles from Pau, especially celebrated for the treatment of diseases of the throat and respiratory organs. It is largely frequented by French ecclesiastics, professional singers, actors, &c., but the number of English visitors is comparatively few. Eaux Bonnes itself is a mere village, consisting of a clump of houses and hotels situated in a narrow valley 2,460 ft. above sea level, and surrounded by high mountains. The climate is particularly soothing, and the atmosphere remarkable for its great stillness; it is subject, however, at times to heavy rains and violent thunderstorms. The waters, like those of other Pyrenean spas, contain, principally, sulphur, combined with sodium. The chief spring is La Source Vieille, which has a temperature of 91·4 deg. Fahr., and is reserved exclusively for drinking purposes; it is to the use of this spring that the beneficial effects in the class of complaint above-mentioned are ascribed. A noticeable feature at Eaux Bonnes is the existence of a very fine promenade—the Horizontale—especially adapted for invalids who are unable to climb the steep slopes, or to penetrate into the many beautiful mountain recesses and ravines with which the neighbourhood abounds. In addition to the cases already referred to, the Eaux Bonnes waters are said to be beneficial in the earlier stages of consumption. The accommodation for visitors is very good. Hotels: Grand Hôtel de France, Hôtel des Princes, Hôtel Richelieu. Fares, from London, *viâ* Paris, Bordeaux, and Pau, to Laruns-Eaux-Bonnes, thence by diligence: First class, £7. 5s.; second class, £5. 8s. 6d.

Eaux Chaudes.—A village twelve miles from the previous resort, and, like it, situated in a valley at a high altitude (2,200 ft.) above the sea. Here, however, much of the resemblance ceases. Eaux Chaudes has not the life and energy that characterise Eaux Bonnes; indeed, it may be said, practically, to be deserted. There are baths certainly, and by no means bad ones, but the number of people using them is exceedingly limited; and the same may be said of the springs. Eaux Chaudes, in fact, has fallen out of fashion. This is much to be regretted, for its natural attractions are undoubtedly very great, and the waters are calculated to have beneficial effects in many forms of disease. As an instance, it may be mentioned that they are especially serviceable in cases of muscular rheumatism, where there is much irritability and nervous derangement; and also in certain varieties of neuralgia. Perhaps, some day, a turn may take place in Fortune's fickle wheel, and Eaux Chaudes be restored to public favour again; it certainly deserves to be better patronised than it is now. Hotels: Hôtel Baudot, Hôtel de France, Bandas. Fares from London, by the same route as to Eaux Bonnes: First-class, £7. 6s.; second-class, £5. 10s.

Egypt.—Divided, for the purposes of description, into

Scott's Midlothian Oat-Flour.—Messrs. A. & R. Scott, of Kingston, Glasgow, and Finsbury-square, London, have prepared a singularly pure and nutritious "Oat-flour," which bids fair to take high rank among the food products which are specially adapted for infants and invalids, and for the use of dyspeptics in particular, whose digestion is weak, and whose stomachs refuse to assimilate foods of ordinary kind.—Ed. Health.—[Advt.]

three parts—Lower, Middle, and Upper. Each of these, from a health point of view, has its special characteristics. Alexandria, in Lower Egypt, for example, is distinguished by a hot but humid atmosphere, with a copious rain-fall from October to February; at Cairo, in Middle Egypt, the climate is considerably warmer and very much drier, the mean annual temperature being 71° Fahr., or three degrees higher than at Alexandria, and the rainfall very much less; while, as the traveller proceeds up the Nile into Upper Egypt—which he can now do by steamer instead of the old, draughty river-boats, which, for the invalid, possess many disadvantages—the temperature becomes higher even still, and the atmosphere more destitute of moisture. The season extends from November to March. The distinguishing feature of Egypt as a health-resort—that is to say, of Middle and Upper Egypt, more especially, since Lower Egypt, on account of its dampness, is rarely recommended—is the warmth and dryness of its atmosphere. In this light, it is particularly suited for cases of consumption in an early stage; and not only this, but, as Dr. Burney Yeo points out in his excellent book on "Health Resorts and their Uses" (to which we may now acknowledge our indebtedness for much valuable information incorporated into these papers), it has been found beneficial in many of the more advanced forms of this disease. It is also useful for affections of the throat and chest, for asthma, gout, and rheumatism, and in all forms of scrofulous complaint. It should, however, be remembered, that though the temperature of Egypt is comparatively high, it is yet subject to very considerable variations; there is often as much as 28° Fah. difference between the height of the thermometer during the day and at night. Special attention should, therefore, be paid to the clothing, and invalids ought to be careful not to venture out after sunset unless well protected against the abundant dew which then falls, and the (by comparison) chilly atmosphere. The best time for taking a Nile voyage is in the early part of December, and the voyager should be back in Cairo before the end of March. In conclusion, there are usually two considerations which trouble the minds of people about to visit Egypt—one is, how to get there; and the other, where to go on leaving, for it is not advisable that invalids who have passed the winter in Upper Egypt should immediately return to our own cold latitudes, but should spend a few weeks at some intermediate health-resort, in order to preserve the beneficial effects gained. The first question is soon answered. Undoubtedly the best and most convenient route to Egypt is through Italy to Brindisi, thence by steamer to Alexandria, a journey occupying six days. Fares from London, *viâ* Paris, Macon, Mont Cenis, Turin, and Bologna, first class, £24; second, £17. 15s. Or, if the traveller prefer it, he can take a sea-voyage the whole way, by P. & O. steamer from Gravesend; but he will be thirteen days over the passage if he do so. In regard to the other question, where to go on leaving Egypt, it is much more difficult to speak. There are, in truth, not very many places of sufficient warmth and altitude—the features which are essential—that the invalid can seek in the spring of the year. Perhaps the Island of Teneriffe offers most advantages, or he might go to one of the Swiss health-resorts. Much, however, will depend upon the particular form of malady from which he is suffering.

A Texas steer was loose in the streets at the West-end in Boston, the other day, and it is unnecessary to say more of the way things were going on. A sick man in the house heard the disturbance, and, looking wearily to his nurse, said: "I do wish that Harvard student would go home."

Jottings from the Journals

"Th' ingredients of health and long life are
Great temperance, open air,
Easy labour, little care."—*Sir Philip Sidney.*

School Pressure at the Health Exhibition.—If nothing essentially new was elicited at the discussion on School Hygiene on Tuesday, the views of those who believe that education is taking unhealthy and unnatural forms were stated with new force and clearness. Mr. Teale's paper, in particular, was a bold and clear indictment of the existing system, with its ever-multiplying examinations, its premium on cram and cleverness, and its want of respect for good, general, and sensible results. Mr. R. Brudenell Carter was equally explicit in saying that the present system was injuring the eyesight. Defects of sight were increasing, and in one Board School in London, he said, no less than one-fourth of the children were suffering from such defects. A word was said by Mr. C. E. Shelley, M.B., in defence of old-fashioned methods of corporal punishment, "which modern sentimentalism seemed inclined to abolish altogether," but which, by the way, are not altogether extinct. Sir Joseph Fayrer wound up by pointing out the evil effects of children having to prepare lessons at home in the evening. The fact is that we ought to make education more pleasant, healthy, and natural, and should remember that the world does not exist for clever children, but for ordinary ones. The success of our methods should consist in turning out the largest number of healthy, happy, and capable pupils, not in creating a few prodigies. —*Lancet.*

* * *

The Physician's Calling.—Bacon advised physicians to raise their thoughts above common cures, and to turn them to the subject of prolonging and renewing the life of man. Like much of the advice given to our profession by men of great intellectual attainment, this only served to show that he had failed to recognise the essential conditions of our calling. It is given to philosophers to make broad generalisations, and to see in the sacrifice of the individual an agency tending to the general good. An Aristotle or a Seneca can advise that delicate children should not be brought up, that so the race may be improved. But with us the individual is everything. It is our duty to fan the puniest flicker of vitality, and preserve it from extinction as long and as far as the most jealous care can be effectual for the purpose. What the sick and suffering ask of us, is to have their pains and maladies mitigated or cured in the speediest and most effectual way. *Melius anceps remedium quam nullum* is a maxim which may not be a very wise one, but which certainly would fairly represent the desire of the great majority of the human race. It is our duty to seek and to apply these remedial measures to the best of our knowledge and capacity. There is deep truth in the saying of Bacon: "They be the best physicians, which being learned, incline to the traditions of experience, or being empirics, incline to the methods of learning;" for it indicates that we should draw alike from all sources of knowledge. It used to be a reproach to physicians that they followed too implicitly the teachings of their masters, and that they were unduly slow in accepting new ideas. At the present day we are no longer

Pownceby's Pure Wines and Brandies, as analysed, and especially selected to suit medicinal purposes, may be obtained in small quantities at wholesale prices. Free delivery within fifty miles. Circular and price current by post from Pownceby & Co., Wine and Brandy Importers, 183, Oxford-street London, W.—[Advt.]

liable to this reproach. One is almost inclined to suggest that an undue haste is occasionally shown in adopting suggestions which rest on insufficient evidence or observation. It shows, however, a change in the habit and temper of mind which is in accordance with the spirit of the age. It is well that novel views should meet, as they are sure to do at meetings such as this, that rigorous and searching criticism which is the surest test of truth, and which best proves its strength and vitality.—*British Medical Journal.*

* * *

The Air of School-rooms.—Dr. W. F. Sheehan, until recently Health Officer of Rochester, N.Y., some time since read a paper before the Academy of Sciences of that city on School Hygiene, in which he speaks of the close connection between the purity of air in school-rooms and clean cellars and well-constructed sanitary appliances. The purity of the air of the rooms depends in the largest measure on the purity of the cellar-air. "Cellars improperly lighted, lumbered with the refuse of years of school-work, containing bins of rags, paper, old clothes, having water-closets and urinals in darkened and unventilated corners, yield large proportions, sometimes as high as 15 per cent., of foul and disease-producing air to the rooms upstairs, particularly in winter, when the stoves are in full blast, and when the frozen ground outside impedes the escape of poisoned air. If the water-closets are of poor pattern, if the soil-pipe is unventilated, if the drain is under the cellar-bottom, if the floor is uncoated with impervious cement or asphalt, if the ventilating-flues are open at the cellar—and these are defects commonly found in schools—the evil is aggravated. When the windows and doors of the class-rooms are closed, it would not be in excess of the truth to state that fully 50 per cent. of the air which the pupils inhale is derived from the cellar. It has become quite the fashion to place water-closets in the cellar. The style in general use is the common hopper with an S-trap under the floor level. The supply of flushing water is inadequate to drive the waste through the traps, and in them it remains to decompose and emit foul odours. In fully 25 per cent. of the closets no water is supplied to traps, on account of the valves getting out of order. The odour in these apartments is abominable; it freely escapes into the halls and corridors, and subsequently into the rooms through the doors that lead to them. I know of one school where the polluted air from the water-closets is warmed by steam-pipes and sent upstairs to be inhaled by the pupils. The smell of the water-closet is as strong in the third story as in the water-closet apartment in the cellar."—*Sanitary Engineer.*

THE SANITARY ASSURANCE ASSOCIATION.—At the ordinary monthly meeting of the council of this association a paper on the Sanitary Exhibits at the International Health Exhibition was read by Mr. Mark H. Judge, A.R.I.B.A. On the question of the disconnection of house-drains, Mr. Judge said arrangements for providing a free passage of air into drains on the house side of outfall traps to form an air break or disconnection between sewers and house drains were now admitted to be necessary by all sanitary authorities. By means of the outfall syphon trap, combined with air disconnection and outlet ventilation above the roof, a dwelling would be thoroughly protected from the ingress of sewer air. With perfect house-drains, properly disconnected from the sewer, the inhabitants of a town dwelling might enjoy the blessings attendant upon cleanliness; but without such disconnection from the public sewer the cleanest possible household must share the dangers resulting from the sins of others against the laws of health.

Our Bookshelf

"Reading maketh a full man."—*Bacon.*

BALDNESS AND GREYNESS.

On Baldness and Greyness. By TOM ROBINSON, M.D., &c. (London: Henry Kimpton, High Holborn, W.C.)

THERE can be no question that, apart from questions of personal appearance, the occurrence of either of the conditions of which Dr. Robinson treats is a source of worry and anxiety to many persons. His book, therefore, will probably be perused with care and interest by a large section of the reading public. The perusal of the work is likely to be followed by benefit, because the author writes in a clear style, and because the book is not one of those "trifles light as air" which professional men too often throw off as a mere advertisement, and which contain a great deal of self-laudation, descriptions of ailments, but few or no hints for treatment. In such cases, the author's aim and desire are simply those of the quack, who wishes to attract clients to his consulting-room for treatment. Over and over again the *brochure*-nuisance is forced upon our attention. Mr. "This or Dr. That" writes a trifling little pamphlet on some simple ailment, advertises such a pamphlet thoroughly in the public journals, contrives that his name shall be associated with the special ailment named in the pamphlet, and after alarming and exciting the lay mind, cunningly draws in at once the patients and their guineas. In contradistinction to this utterly quackish fashion of advertising capabilities and powers of healing, which, as a rule, are of a very ordinary kind, must be placed books which are written in the true spirit of medical and scientific advance. These latter appeal to the educated common sense of the community; and refuse to treat cultured men and women as mere subjects for experimentation with drugs. To this latter category of works Dr. Robinson's book belongs. It is a volume which regards the intelligent reader as capable of forming an opinion concerning the causes and treatment of greyness and baldness, after the symptoms and nature of their ailments have been duly described. As such, we repeat, it will be perused with profit and instruction by the laity, while the hints for treatment given at the close of the book form a most valuable part of the work.

Dr. Robinson gives a clear account of the anatomy and physiology of the hair. He notes the nature of its colour, and shows clearly the condition on which the nutrition and welfare of the hair depend. A curious fact is noted (pp. 20 and 21) regarding the growth of hair after death. Numerous cases seem to show the independent nature of the life of the hair in this respect. It is recorded in *Notes and Queries*, that in 1854, when the parish church of Turvey, Beds, was being restored, the remains of Lady Johanna, wife of the second Lord Mordaunt, were disclosed; "her dark auburn hair had grown so much after death, as to fill up the space around, and form a mould for the head." Hair grows more rapidly in summer than in winter; and Berthold tells us that in young females it grows at the rate of from 7 inches in twelve months.

In dealing with "Alopecia," or loss of hair, Dr. Robinson takes care to preserve the clearness of style which

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marks his introductory chapters. Occasionally the condition of baldness is inherited; while in advanced life it would seem to be a normal condition of the human scalp. Baldness may, however, come on prematurely; although, in all probability, nervous conditions affecting the nourishment of the hair follicles may prove to be the most frequent cause of this ailment. As a matter of fact, baldness is common as the result of weakening diseases, mental shock, and allied conditions. Baldness due to parasitic fungi affecting the hair, forms a special study. Thus, "ringworm," as the most common disease of the hair, is due to the presence of these lower parasitic plants, and different species of these fungi are found in different phases of the disease. A singular disease, also noted by Dr. Robinson, is *sycosis*, or "chin-whelk," as it is named, in which troublesome spots appear amongst the hair of beard and whiskers, and produce bald patches therein. This affection is also parasitic in its nature.

Abnormalities of the hair present certain curious features, among which "feathers" may be developed out of the hair-structures. A couple of black rabbits, Dr. Robinson tells us, have been exhibited at Maccomp, co. Cork, covered with these "feathers." "Cosmetics" are also duly noticed. The *recipe* for the preparation which Helen of Troy is said to have used in the production of her "fatal beauty," is given by Dr. Robinson as "the yolk of an egg, and gum benzoin, which, when applied, would certainly render the skin smooth." Dyes and depilatories, now so largely sold, are named by the author as requiring great care in their use. "Some of the hair-restorers," he adds, "contain as much as a drachm of acetate of lead in half a pint of water"—truly a poisonous decoction. Equally injurious are the preparations of sulphur and iron, or sulphur and lead. Dr. McCall Anderson, of Glasgow, regards "a lotion of the hyposulphite of soda the most perfect hair dye." "A few applications," says Dr. Robinson, "rendered the hair of the part which was before bright red, nearly jet black, while neither the skin nor the clothing was stained." The "golden colour" formerly so fashionable, was produced "by a solution of arsenic with a mordant of hydrosulphate of ammonia."

We have already noted that Dr. Robinson very fully describes the methods of treatment for the diseases he discusses in his book. For ordinary baldness, associated, in the case of young ladies, in spring and autumn with debility, the author finds iron, combined with potass, &c., a good remedy; while having the hair "tipped" is also recommended. Acid and alkaline washes for the hair are also given, these being used alternately. For a shampooing liquid, we are recommended to use a mixture of animal soap (B.P.), aquæ coloniæ, liquor ammonia (B.P.), and distilled water. Other methods of treatment adapted for the various affections described in the book are also explained. Altogether, we regard this little work as a highly useful one, and as calculated to do much good, if only in the way of preventing readers from wasting money and health on useless and injurious nostrums for the hair.

The Doctor and the Drugs.—This is how the anecdote is told by the Portuguese gentleman who writes on *English as She is Spoke*:—"A physician eighty years of age had enjoyed of a health unalterable. Theirs friends did him of its compliments every day: Mister Doctor, say they to him, you are an admirable man. What you make then for you to bear you as well? I shall tell you it, gentlemen, he was answered them, and I exhort you in same time at to follow my example. I live of the product of my ordering without take any remedy who I command to my sicks."

Sanitary Appliances, Etc.

MESSRS. J. & C. FIELD'S CANDLES, &c.

The well-known firm of Messrs. J. & C. Field, whose "Ozokerit" Candles have been so long known for their excellence, have emphasised their exhibit at the "International Health Exhibition" by the interesting nature of the arrangement of their *spécialités*. Visitors thereto will find much to admire in the dexterous manipulation to which their material, "Ozokerit," has been subjected. We have received from Messrs. Field samples of their candles and of their Patent Samphire Soap, to both of which articles we think the attention of our readers may profitably be directed. While spermaceti—the product of certain bony cavities in the skull of the sperm whale—is the typical material for candle-making, the high price of this substance renders the manufacture of such lights an extremely expensive matter. The spermaceti candle, with its clear, lustrous flame and its rigidity and regular consumption, is the *beau-idéal* of a candle-light. As a test for the lighting power of gas, the sperm candle has long been known, the purity of its flame giving it this high place in practical gas-testing. Next, however, in merit to the sperm candles are Messrs. Field's "Ozokerit" Candles. Here, by a happy combination of chemical skill and manufacturing dexterity, the patentees have been able to produce a light which approaches most nearly to the sperm candle in the regularity of its consumption and in the *minimum* quantity of effete products it emits. Naturally, the objection to all candles is their tendency to waste by "guttering" when exposed to a draught. Messrs. Field have succeeded in overcoming this disadvantage in a highly ingenious manner. They provide a patent "Candle Guard," or "Lychnophylax," which is a light glass saucer, fitting closely to the top of the candle, falling by its own weight as the candle burns, and retaining its position till the candle has become exhausted. This handy invention entirely prevents waste and "guttering;" and by using the "Save-all Tubes" the candle can be utilised to its last drops. The free distribution of grease over carpets, &c., is entirely prevented by the use of these "Candle Guards," which are made in two sizes, viz., for No. 4 and No. 6 candles. The power of these "Guards" to prevent candle waste is well seen at the "Health Exhibition," where, notwithstanding free daughts, the candles on Messrs. Field's stall burn evenly and without a sign of waste.

The "Samphire Soap" of Messrs. Field has been submitted by us to a careful examination, and, as a result, we are able to pronounce a definite opinion regarding its purity and excellence. The special feature of this soap is its composition of certain principles—iodine, bromine, &c.—contained in marine plants, and noted for their health-giving qualities. The essentials of sea-water are thus contained in a convenient form in this soap, which, being made with pure and natural oils, is free from all deleterious colouring matters, acridity, and caustic properties. The "Samphire Soap" also possesses antiseptic qualities which, in the case of infectious disease, render its use highly beneficial, while, for many irritating conditions of the skin, we should expect its use to be followed by beneficial effects. As an ordinary toilet soap, the "Samphire" is certain to be widely used, while for the nursery, its use may be highly recommended.

[Through an error, Dr. Mitchell, whose report on Wood Wool appeared in our issue of August 1st page 269, was mentioned as "of Culford," Dr. Mitchell's residence is Catford, S.E.]

"Just think, hubby dear," said the wife of one of our prominent Westchester County lawyers, "we've been married nearly a year, and our hens haven't laid a bad egg yet."

Disinfection of Rags.—The Treasury Department of the United States has given the following directions for disinfecting rags imported into the United States from Egypt. They have been prepared after consultation with the Boards of Health of New York, Boston, and New Haven. 1. Boiling in water for two hours under a pressure of fifty pounds per square inch. 2. Boiling in water for four hours without pressure. 3. Subjection to the action of confined sulphurous-acid gas for six hours, burning one and a-half to two pounds of roll brimstone, in each 1,000 cubic feet of space, with rags well scattered upon racks.

Our Letter : Box

"Conference [maketh] a ready man."—*Bacon.*

NOTICES TO CORRESPONDENTS.

All Communications for the Editorial Department (including specimens of Sanitary Appliances, &c.), to be addressed to "The Editor of Health," 74-76, *Great Queen-street, London, W.C. Those intended for the Publishing Office to be sent to* "The Publisher," *at the same address.*

Contributors are requested to send stamps for the return of the MSS. *in event of non-acceptance. Every care will be taken to ensure the safety of* MSS., *but the* Editor *and* Publishers *cannot hold themselves responsible for accidental loss.*

LETTERS TO THE EDITOR.

THE HOWARD METHOD OF ARTIFICIAL RESPIRATION.

Sir,—May I be permitted to point out that in "M.D.'s" otherwise very admirable directions "What to do in a case of Drowning," he has omitted to mention the most recently devised and very important method of performing artificial respiration—I mean that known as Howard's. This method, so-called after the inventor, Dr. Benjamin Howard, has the merit of being very simple and efficacious, and has of late been taught in ambulance classes with success. The mode of procedure is as follows:—The clothes are rapidly removed and rolled up into the form of a bolster, the patient is then turned on his face, with the bolster under the pit of the stomach, the head being the most dependent part. The object is allow all fluid to escape from the mouth and throat. This is more effectually accomplished by the operator placing both hands on the back of the patient immediately above the bolster, and forcibly compressing the stomach and lower part of the chest against the bolster for a few seconds two or three times, with very short intervals. He now quickly turns the patient on his back, the bolster beneath it making the lower ribs and pit of the stomach the highest point of the body, the shoulders and the head just resting on the ground. The patient's wrists are now seized, the arms extended fully behind the head and pinned to the ground with the operator's left hand, while with his right thumb and forefinger, covered with a dry pocket-handkerchief, he pulls out the tongue and holds it at the extreme right corner of the mouth. In this way the air passages are kept freely open, and the lungs and chest are now in a position for such expansion as is unattainable in any other manner. The abdominal viscera are also out of the way, as, by the law of gravitation, they tend to sink down from the pit of stomach, which is the highest point, and so the action of the diaphragm, or "midriff," is left unimpeded. Having given the wrists and tongue to an assistant, the operator now kneels astride the patient's hips and rests the ball of each thumb just where, on either side, the lower rib-cartilages join the breast-bone or sternum. The fingers then fall naturally into the spaces between the ribs. Now, resting his elbows against his sides, and using his knees as a pivot, the operator throws the whole weight of his body slowly and steadily forward until his mouth nearly touches the mouth of the patient, and remains while he may slowly count—one, two, three; then, *suddenly*, by a final push, he springs back to his original erect position on his knees, remains there while he may again slowly count—one, two, three; then repeats, and so on about ten or twelve times a minute. When respiration is restored, the ordinary treatment—rubbing of limbs, &c.—is called for.—I am, yours, &c., J. M. R.

THE FOOT IN WALKING.

Sir,—The question whether the heel or the toe should, in walking, first touch the ground, is, from a health point of view, of minor importance. I have not the slightest doubt that it should be the toes, and I find it easy to walk barefooted without touching the ground at all with the heel, and yet bring it so close that an observing friend does not notice anything remarkable. So much for Mr. Branch's view that it is practically impossible. Brazilian labourers, as I am told, walk barefooted, and rarely touch the ground with the heel.

I cannot discuss healthy boots with Mr. Branch, who says: "I contend that a boot should not be made the shape of the foot;" and, again, "The main lines of an ordinary foot are straight." I had thought that the outer margin was a "main line," and that it was a bold curve.—Yours truly, T. S. Ellis.

6, Clarence-street, Gloucester.

QUERIES AND ANSWERS.

GENERAL.

Burnley.—Thanks; not at present.

C. M. G.—We prefer the former plan; but the latter has also its advantages.

Andrew Caird.—See the paper on "Disease Germs" in last week's Health.

Austin J.—Yes; the place is bracing, and will suit you.

Ablekirk.—There is no need to hurry. Any time within the next three weeks should prove satisfactory.

T. B.—Prestonpans is near Edinburgh. There is a station close to the village.

A. Gordon.—1. Probably Dr. Bennett's manual would best serve your purpose. 2. Henfrey's "Botany," or Prantl's, translated by Vines. Sach's is probably beyond you at present.

B. T. O.—You will find full particulars in the "University Calendar" for the current year.

James S.—Possibly carbonic acid gas. Carbonic oxide you should note is not carbonic acid, which latter gas is carbonic dioxide.

Cecil Garth.—The mere look of the advertisement should have warned you of its quack nature. When you find a person professing to give advice free, notwithstanding large expenses in the way of advertising himself as did your quack friend, you may be prepared for the "cloven hoof" later on.

Tricycle Replies.—C. A.—There can be no harm in gentle exercise in your case.—Peter L. A good machine, certainly.—A. X. Dangerous to tricycle so long as the ulcer remains unhealed. Try "Wood Wool" as an application.—O. P. Regulate your distance simply by your strength and inclination, and, above all, don't overdo the exercise.—Angelique. Nothing of consequence: use cold water.—P. P. C. The locality is suitable for tricycling. There are a few hills, but plenty of level ground as well.

SANITARY.

S. F. E.—We should recommend Dr. Hassall, of 54, Holborn-viaduct; Mr. H. S. Carpenter, F.C.S., of 32, Holborn-viaduct, London, E.C.; Mr. Dyer, F.C.S., 17, Great Tower-street, E.C.; or Messrs. Wigner & Harland, 37, Lombard-street, E.C.

C. T.—Try the "Moth Destroyer" of the Chemical Papers Co., 3, Lombard-court, London, E.C.

Tecat.—You refer to Dr. Buchanan's report on the "Dampness of Soils in Relation to Phthisis." See Local Government Board reports.

I. B.—See page 24 of the report.

Householder.—We propose publishing an account of the Earth and Water-Closet at an early date.

Pater.—Yes, eye-inflammation is a well-known result of children being kept in ill-ventilated schoolrooms. Suggest the school (as a cause) to your doctor.

A. Tait.—We prefer to employ the name "Health-Science" as the best equivalent for the term "Hygiene." By some, this term is translated to mean "Preventive Medicine."

Nemo. — According to some critics, the plan of spraying Eucalyptol through a room for flies is not always successful. Try Calvert's Carbolic Acid Vaporiser, a cheap little machine, which will diffuse the odour of that substance through a room, and check fly-development. Have you tried the Myocom or Fly Gum, advertised in most of the London papers? Look well to your premises, and thoroughly disinfect them with burning sulphur, carbolic acid, or Sanitas, and this will probably cure you. There must be some unsanitary state near you which favours fly-development so much.

E. N. Nash.—For organic matter in water, add a drop or two of Condy's Fluid, the colour of which will disappear if organic matter be present. Lead may be detected by using a glass rod wetted with sulphuret of ammonium. If the water is brown-coloured thereafter, iron or lead may be present. If the colour does not disappear on adding two or three drops of hydrochloric acid lead (or copper) is present. If the colour does disappear, or diminishes, iron is present. Excess of minerals can only be ascertained by analysis. The degree of hardness is ascertained by the "soap test."

MEDICAL.

W. B.—1. The remedy you name is an over strong one for your case. We should not advise you to use it save under medical advice. We would suggest that you should use the lotion prescribed to "J. W. Paton" in Health No. 69. Use a soft brush, and avoid

hard combs. Your general health may be at the root of your hair trouble. Take fifteen drops *Fer Bravais* in water thrice daily for a time, and report result to us. 2. Leave the hair alone—certainly never "pull it out." Keep it cut very short for some months.

J. J. James.—1. Yes; such walks (not too lengthy) will do you good. 2. The simplest remedy would be twenty drops of Dr. Collis Browne's Chlorodyne given in water, and the dose repeated, say, in three hours if relief is not experienced. 3. Price, 1s. we believe.

Experimentia.—Take a teaspoonful of Fellows' Syrup of the Hypophosphites, thrice daily, an hour before food, in a wineglass of water. See that you also take out-door exercise as frequently as possible.

Anxious Reformer.—No need to be alarmed. Avoid tea and coffee; give up alcoholic liquors entirely, and take Morson's Pepsine after food (as directed on the bottle). A teaspoonful of Fellows' Syrup, well diluted with water, might also be taken twice a day, an hour before lunch and dinner. If not improved, we shall be glad to advise further.

Troubled.—Such cases are difficult to treat properly. We should recommend that the patient be removed to a private resort where cases of that kind are treated professionally. In the advertising pages of Health you will find advertisement of Colman Hill House Retreat, Halesowen, Worcestershire, which is licensed exclusively for lady-patients. This establishment can be recommended to your notice. We should feel inclined to give the patient twenty grains bromide of potass occasionally in water, when the craving is worst; but we must warn you that without professional and constant attention such cases are almost hopeless of cure.

J. Grant.—Try for the catarrh a weak carbolic spray, say 1 carbolic to 40 or 50 water. The nasal douche is not so effective as the spray. Go away for a change, try a bracing seaside place for a time—Dunbar or North Berwick for example, and take 15 drops *Fer Bravais* twice daily, in water, before meals. A change to the sea will often cure your complaint when all other remedies fail. Let us hear how you are later on.

Veronica.—Do you not mean chlorate of potass, which is a well-known remedy in cases of sore throat and ulceration of mouth, etc.? *Chloride* of sodium is common salt. *Chlorinated Soda* is well-known as an antiseptic; is it this compound which is meant? There is also a *Chlorate of Sodium* which is used like chlorate of potass, for ulceration and soreness of the mouth. No remedy for the "darkness," we fear; it is natural to many persons.

Copia.—The Electrical Belt you name might be tried. But the patient must also observe the following hints, and persevere with the treatment: cold sponging each morning; avoidance of suppers and fluids late at night; avoidance of alcohol; food to be light; and a teaspoonful of Fellows' Syrup of the Hypophosphites to be taken thrice daily in a wine-glass of water an hour before meals. Above all, he must take moderate out-door exercise, and be cheerful in mind. There is no need for alarm of any kind, and only quacks will persuade your friend to the contrary.

Cadensus.—Try the effect of resting absolutely after meals for at least an hour, and of taking Pepsine with your food. Dilute your spirits at dinner with potash or soda water, and you might also try the effect of taking ten grains citrate of potash twice daily in half a tumbler of water, as a slight corrective. Continue the cold sponge-bath, and let your open air exercise be moderate. The tonic above recommended to "Copia" might be tried later on if the means just indicated fail to relieve you. Glad to advise further, if necessary.

Latch-Key.—Give up all alcohol, beer, &c., and confine your drink to potash or soda-water for a time. See that you correct any tendency to constipation through using fruits and vegetables as part of your food, and take fifteen drops *Fer Bravais* in water thrice daily before food. If not bettered, write again. Cold sponging in the morning will do good, if you have sufficient reaction.

C. J. S.—Try the effect of rubbing in Carbolated Vaseline (or pure Vaseline, with, say, three per cent. of carbolic acid added to it) to the bare patches night and morning for a day or two, then use plain Vaseline; and let us hear the result after a fair trial of the plan. You must look to your general health. The affection is probably contagious.

George Ravenred.—Try the effect of taking *Fer Bravais*, as recommended to "Latch-key" above. Wash the face with tepid water and Pears' Soap daily, and use brisk friction with a hard towel thereafter. We do not know what you mean by "scenting tobacco."

Milton.—You suffer from a common form of neuralgia, attending on, or resulting from, a weak state of health. We should advise you to try change of air. Go to the seaside for a time, and take the tonic above recommended to "Copia." These measures will probably cure you. If not, write again.

F. Alexander.—1. Most likely the book contains such instruction. Are you aware the disease you name is extremely rare? If you wish for full particulars regarding it, we should advise you to consult some technical manual of skin-diseases. 2. Such reaction probably indicates acidity of mouth or stomach—and it was not connected with the saliva at all. The mucus of the mouth, you should remember, is itself acid in character.

Constant Reader (will please, in future, use a more distinctive appellation).—The wood-wool may be obtained from Messrs. Essinger & Neuberger, 11, Hatton-garden, London, E.C. We should think it would be a suitable application for you; and it is often used in such cases. You evidently, also, need cod-liver oil and iron; have three drachms syrup of iodide of iron added to six ounces of cod-liver oil, and take a tablespoonful, thrice daily, after food.

J. S. Pickering.—Try the effect of taking, for a time, the Cod-Liver Oil Cream made by Mr. Thomson, Chemist, Dublin-street, Edinburgh. Don't overdo exercise, and go for a change to the seaside—East coast, if possible. You possibly do a little too much in the way of exercise—hence your spareness and other symptoms. If not bettered, write again.

Gordon Caird.—Take with you some of Collis Browne's Chlorodyne, and check any symptoms at once by taking fifteen to twenty drops in water.

B. Hamley.—1. Try the tonic recommended to "Copia" in present number of Health. 2. No. 3. You mean permanganate of potash.

A. G.—No fear of cholera, we should say. See advice to "Gordon Caird" above.

D. H. R.—You will find a little Prepared Fuller's Earth—to be had of any druggist—dusted on the parts, give you relief. Bathe the skin, if very tender, frequently with spirits and water.

Marine.—Give up your smoking altogether, if you cannot use tobacco in moderation. Such symptoms as those of which you complain are often traceable to abuse of tobacco.

Madras.—The case you describe is one with which we feel great sympathy. In the first instance you have to deal with a nervous disposition, which is apt to exaggerate ordinary physical symptoms into morbid ones. Then, there is probably a little physical weakness, though, of course, no actual disease of any kind. Our advice is simply to attend thoroughly to the general health; the food should be very simple and non-stimulating; all luxuries should be forbidden; and ten drops *Fer Bravais*, taken in water thrice daily, should be given for the symptoms you name. Mentally, we think, improvement would follow, if a change of scene could be had. Possibly your present climate is too relaxing. Try the effect of a temporary change to a more bracing resort, avoiding all hurry and noise as much as possible. Judicious mental employment should certainly be fostered; and the special tastes consulted as to this. We should be very glad to be of any further service. We would like to add that bromide of potass should not be given.

Aliquis.—The gentleman you name is a duly qualified practitioner; but, if you care to have such, we can send you address of a reliable authority in London, on receipt of stamped-addressed envelope.

F. W. Hingston.—You should try wood wool. It will certainly form a capital dressing, although it cannot for a moment be supposed to have any curative effect in such a disease as cancer. Wood wool is regularly advertised in Health.

Geheimniss.—1. The remedy is a very drastic one, and not at all successful. 2. Apt to cause inflammation. 3. We advise you to follow advice, and especially try the tonic recommended to "Copia" in present No. of Health. We only send addresses of medical men on receipt of stamped addressed envelope.

Pessimist.—Don't consult the person named. His advertisement is certainly offensive in many ways. Consult any respectable practitioner, but avoid quacks, advertising or otherwise. We advise you to continue with the treatment we prescribed, and above all, go away for a change if possible to the east coast, which is more bracing than the west. Don't despair; you will get quite well by persevering in the practical use of our advice.

M. R.—Give cod-liver oil and syrup of iodide of iron, as recommended to "Constant Reader" above; and if possible take the patient away for a change to the sea. Use a nasal douche, and wash out the nose twice or so daily with a solution of carbolic acid in water (say 1 to 40 or 50 of water.) But change and the cod-liver oil and iron are the chief points in the treatment.

Evelyn R.—Try change to the bracing east coast (Essex or Norfolk) by all means. A teaspoonful of Fellows' Syrup of the Hypophosphites should be taken twice daily in a wineglass of water an hour before meals. Write again if not bettered.

Daily Governess.—Under all the circumstances, we should advise you against sea-bathing at present. Try a cold sponge-bath (not wetting the head) at home each morning. This, if it is borne

[*Continued on page* 304.

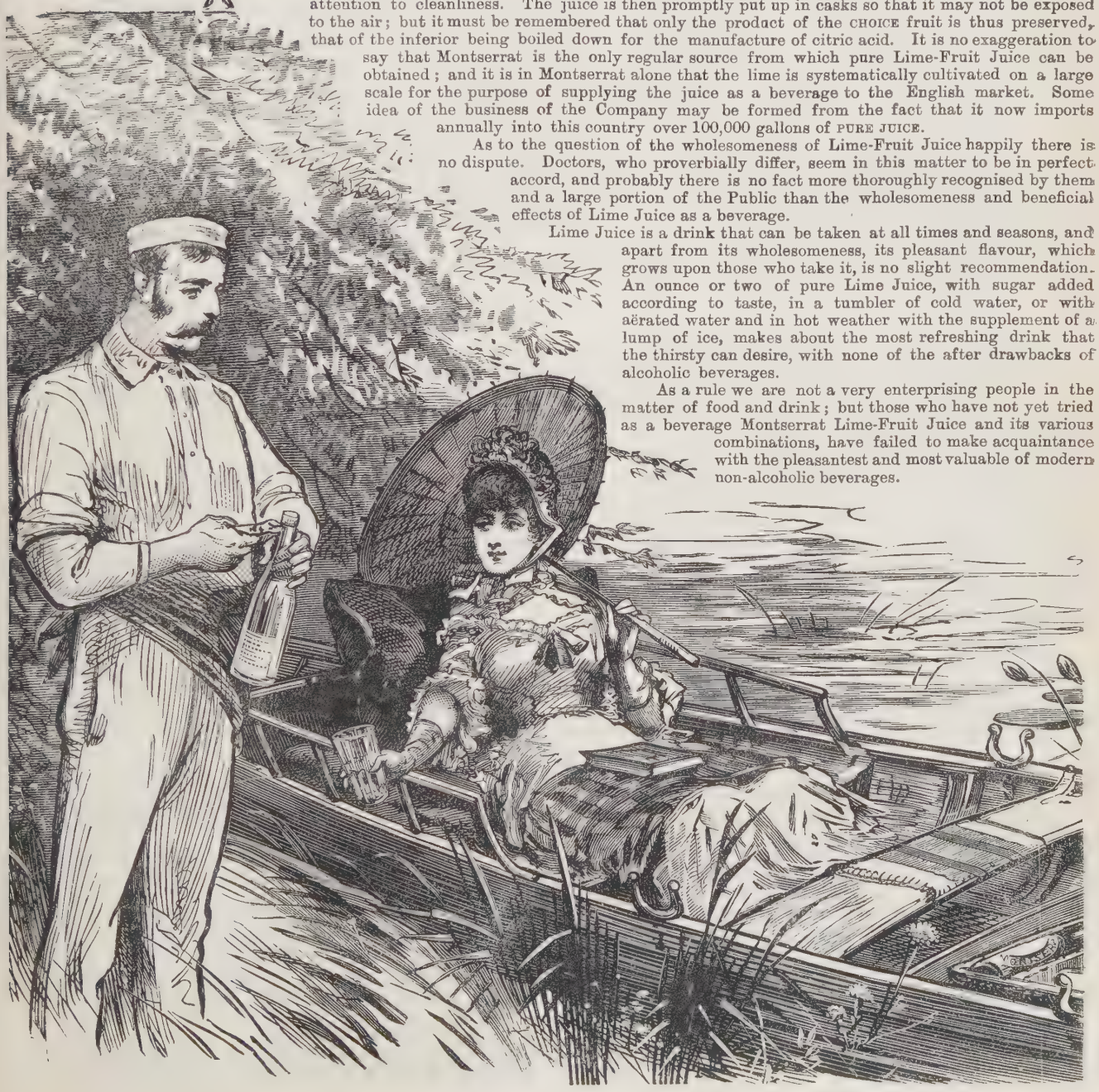
MONTSERRAT LIME-FRUIT JUICE.—Whatever we may think of the declamations and arguments of Total Abstainers, there is no doubt but that the Temperance Movement of the last few years has had a most beneficial effect in lessening the consumption of alcoholic drinks, and creating a demand for beverages of a refreshing but non-intoxicating character. There can be little doubt but that Lime Juice has established itself in public estimation as the best substitute for non-alcoholic beverages.

But there is Lime Juice and Lime Juice; and the great difficulty has been to get a sound and pure product at a moderate price. How then, let us ask, is pure Lime Juice produced, and where does it come from? We will here only venture to give an answer in reference to one particular Lime Juice, known by the name of "MONTSERRAT." As its title implies, it comes from Montserrat, one of the most beautiful and productive of the West Indian Islands. The Montserrat Company, which was practically established in 1868, has this special business in hand; and before the date just mentioned PURE Lime-Fruit Juice was almost unobtainable, the so-called Lime Juice product of Jamaica being most carelessly and unskilfully prepared, and having frequently sea-water added to it to increase its density. To the Montserrat Company the public is indebted for a perfectly pure and wholesome juice of guaranteed uniform quality. The plantations of the Company now cover nearly 600 acres, and contain over 160,000 trees. The fruit is carried down from the mountains to the central manufactories, when the operations of slicing it by water power and squeezing it till the juice is expressed are carried on with a scrupulous attention to cleanliness. The juice is then promptly put up in casks so that it may not be exposed to the air; but it must be remembered that only the product of the CHOICE fruit is thus preserved, that of the inferior being boiled down for the manufacture of citric acid. It is no exaggeration to say that Montserrat is the only regular source from which pure Lime-Fruit Juice can be obtained; and it is in Montserrat alone that the lime is systematically cultivated on a large scale for the purpose of supplying the juice as a beverage to the English market. Some idea of the business of the Company may be formed from the fact that it now imports annually into this country over 100,000 gallons of PURE JUICE.

As to the question of the wholesomeness of Lime-Fruit Juice happily there is no dispute. Doctors, who proverbially differ, seem in this matter to be in perfect accord, and probably there is no fact more thoroughly recognised by them and a large portion of the Public than the wholesomeness and beneficial effects of Lime Juice as a beverage.

Lime Juice is a drink that can be taken at all times and seasons, and apart from its wholesomeness, its pleasant flavour, which grows upon those who take it, is no slight recommendation. An ounce or two of pure Lime Juice, with sugar added according to taste, in a tumbler of cold water, or with aërated water and in hot weather with the supplement of a lump of ice, makes about the most refreshing drink that the thirsty can desire, with none of the after drawbacks of alcoholic beverages.

As a rule we are not a very enterprising people in the matter of food and drink; but those who have not yet tried as a beverage Montserrat Lime-Fruit Juice and its various combinations, have failed to make acquaintance with the pleasantest and most valuable of modern non-alcoholic beverages.



well, will do you as much good as sea-bathing. Take fifteen drops of *Fer Bravais* in water, thrice daily, for a time, after meals.

J. B. G. F.—For such attacks, twenty drops Collis Browne's Chlorodyne should be taken in water.

A. N.—See advice to "J. B. G. F.," above.

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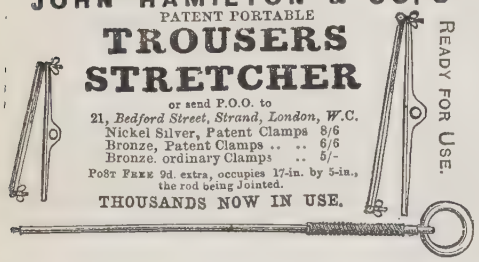

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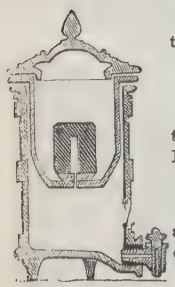

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HEALTH

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, AUG.* 22, 1884.

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Notes by the Way

"Health is the foundation of all our physical happiness."—*Herder.*

THE successor to the "Health Exhibition" has already been announced. The "show" for 1885 is to consist of an "International Inventions Exhibition," and the place of the "Healtheries" will accordingly be occupied next year by a great collection of objects devoted to the illustration of the two departments of "Inventions" and "Music." Naturally, such a title and such a division of subjects will give free scope for the collection of a vast number of exhibits of interesting character. The department of "Music" alone presents an almost illimitable field for the display of interesting objects, and for the practical entertainment of the masses in a manner at once agreeable, effective, and instructive. No less extensive in its character, but perhaps more so, is the section devoted to "Inventions." Here the field is certainly as wide as any one can desire, and doubtless under this title will be ranked an immense variety of objects, many of which may lay claim to fostering and aiding in no slight degree the weal of mankind and the prosperity of the human race.

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THE official prospectus, which lies before us, shows that the Prince of Wales, as before, is the President of the Exhibition for 1885. Her Majesty is Patron; and the Executive Council includes Sir Frederick Bramwell as Chairman, the Marquis of Hamilton as Vice-Chairman; and the names of Sir F. Abel, E. Birkbeck, Sir Francis Bolton, Professor Dewar, Sir P. Cunliffe Owen, Sir George Grove, W. H. Preece, Sir E. Reed, Dr. Stainer, and others, as members of the Executive Council.

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THE division of "Inventions" is to be devoted "to apparatus, appliances, processes, and products, invented or brought into use since 1862." This collection, it is hoped, "will serve to bring vividly before the public the progress which has been made during the last quarter of a century, in applying the discoveries of science to the purposes of daily life." The Musical Division will consist "of examples of musical instruments of a date not earlier than the commencement of the present century; and, in addition, any machinery, apparatus, or appliances, connected with their manufacture or use, or in any way bearing upon the science and art of music, will be exhibited." We think the limitation of the musical apparatus to "the commencement of the present century" in point of time, is a mistaken idea. There is a vast field of interest in the music of the past, and it might be worth the while of the Council to consider the advisability of extending the period of inventions backwards in time, so as to include as complete a history of musical instruments as it is possible to form.

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THE question of "Health," in relation to the "Inventions" shown at the Exhibition, will again be prominently noted. Such subjects as "Water Supply and Sewerage," "Reclamation, Irrigation, and Drainage of Land," "Materials used in Building," "Building Construction," and "Heating, Ventilation, and House Drainage," will not only trench upon the province of sanitary science, but will overlap to a certain extent the subjects treated in the Exhibition of the present year. The topics of "Clothing," "Electric Lighting," "Electro-Medical Apparatus," "Fuel," "Cooking Apparatus," "Food-preservation," &c., are also included in the list of subjects to which the attention of the health-reformer is specially directed. We may only add that we shall endeavour in due course to lay before the readers of HEALTH full details of all the exhibits in the Exhibition of 1885 which merit the attention of those interested in the problems of health and how to preserve it.

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ON more than one occasion we have called attention to the desirability of every one acquiring a knowledge of ambulance-teachings, with the view of enabling them to prevent fatal, or at least serious, results accruing from the accidents of life to which all are liable. Next to the acquirement of such knowledge, we esteem the system of accident insurance now in vogue a highly beneficial feature, and it affords us pleasure to be able to recommend to our readers' notice the claims of the "Scottish Accident Insurance Company," of Edinburgh, to public attention on the above score. The benefits of ordinary insurance need no defence or explanation; but the public have yet to appreciate to the full the advantages which accrue from the investment of a trifling sum per annum in a policy of insurance against accidents, and against the loss of time—which to most of us means loss of money also—such casualties entail. For a few shillings per year, the insured person in the above Company acquires a secure provision for his family against not only death by accident, but against partial and total disablement from injuries of all kinds.

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FROM a health point of view, provision for possible calamity becomes a feature of the life of every thinking person, and there is no doubt that the system of insurance against the results of accidental injuries, now in full operation under the auspices of the Company just named, is one deserving the attention of all. Our first step from home in the morning may cost us a sprain; a boy's slide in frosty weather may break a limb; while a railway casualty may confine us for months. In the language of the Eastern sage, "Happy is he who is prepared for all things, whether good or evil;" and paraphrasing this expression, we might say, "Wise is he who prepares against accident and casualties, by providing against the loss they entail." In effecting this desirable end cheaply, expeditiously, and without trouble, the "Scottish Accident Insurance Company" has distinguished itself highly among its compeers. As an example of what may accrue from such a mode of providing against the accidents of life, we may add that a gentleman who, on April 17 last, took out a policy for £1,000, payable at death or permanent total disablement

by accident, sustained on June 6 the loss of his left hand through a gun explosion. He received £333—or one-third of the amount—for the permanent partial disablement, this amount being paid the insured on June 25. No better example of the value of such provision against accidents could well be offered, and we have pleasure in thus urging the claims of this liberal Company upon the readers of this journal.

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Dr. Cameron, M.P., has just reprinted, in the form of a handy pamphlet, the address he delivered before the British Medical Association at Belfast, on July 31, on "The Cholera Microbe (or Germ), and how to meet it." The address is characterised by the usual lucidity found in the speeches and addresses of Dr. Cameron, and the pamphlet will well repay perusal. He urges that "we should be beforehand with the poison," as the late Dr. Budd, of Bristol, inculcated, by securing a pure-water supply, disinfection of sewers and drains, and isolation of the sick. The pamphlet is published by Messrs. Baillière, Tindall, & Cox, of London.

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Muscular fatigue is a well-known condition — often described popularly as soreness of the muscles or flesh—experienced after prolonged periods of exertion. Dr. Macdonald remarks in the pages of a medical contemporary, that bromide of potass in twenty grain doses, with or without the fluid extract of liquorice, relieves the sensation in question.

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Hazeline (the preparation of the American "witch-hazel" bark) has frequently been noted in Health as a beneficial astringent for various purposes. For bleeding from the nose its use has just been recommended. Diluted with two parts of cold water, and injected into the nostril, this fluid acts beneficially in checking the blood-flow. This is a fact worth remembrance in cases of the above nature, and in allied instances of bleeding of persistent and troublesome kind.

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From several correspondents we have received complaints regarding "the plague of flies," which seems this year to have made its annual appearance with great intensity and vigour. In a previous number of Health we drew attention to the part played by flies in the spread of infectious diseases; and there seems no reason to doubt that in the case of cholera and other infectious or contagious troubles, the insects may prove to be carriers of infection. Indeed, their habits would seem to foster and encourage this idea. With reference to abating the nuisance of flies in our houses, Dr. A. Wright has of late been extolling the influence of Eucalyptol as a preventive of fly-visitations. He says that any substance diffusing an odour of Eucalyptol will keep flies at a distance.

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Dr. Wright's conclusions do not, however, agree with the experiences of other experimenters. For our own part, we should be disposed to try what the vapour of "Sanitas" fluid, or of carbolic acid—diffused through the air of a room in spray or by means of a vaporiser—would effect in the direction of the repression of flies. It should be borne in mind that a plague of flies is often caused by bad drainage, and by accumulations of effete matter allowed to remain near our homes. The use of disinfectants in the dust-bin is often a preventive of fly-visitations. Eucalyptol, it may be added, is prepared from the Eucalyptus-tree or "blue gum" of Australia; and in the form of "Sanitas" is, of course, well known to all.

Original Essays

"Life is not to live, but to be well."—*Martial.*

SLEEP-WALKING AND RELATED CONDITIONS OF MIND.

By Dr. Andrew Wilson.

I.

The "sleep-walker" has always formed a subject of interest to the curious-minded among the lay public and to the man of science alike. It might be added that there are few, if any, conditions of our mental life, which, in one phase or another, are destitute of interest when regarded from the attitude of that science which seeks to explain their nature as far as in it lies. Even sleep itself is a condition which possesses its own attraction for the observer who delights to dwell on the ways and works of his own life. Dreams have formed an absorbing topic from all time past; and sleep-walking, "mesmerism," and related conditions, it is needless to add, possess an attraction of their own for layman and philosopher alike.

The topics to which we have just alluded, however, have too often been relegated to the domain of the charlatan and the conjurer, and have in some cases become invested with an air of mystery which is not that of the undiscovered in science, but that of the show-booth and the exhibition-room. For example, when the name "mesmerism" is mentioned, the title recalls to mind exhibitions at which persons may be seen apparently deprived of their wits and senses, and ready to obey the behests of the "operator," who, as often as not, is a mere showman, as ignorant of the phenomena with which he is dealing, as are the subjects themselves. Hence "mesmerism," as the name for a series of interesting mental phases, has acquired a kind of popular discredit, which seems at once to place the subject outside the bounds of the domain in which science reigns supreme. That this state of matters should not be allowed to continue, and that the public should be educated in all topics relating to the mental life of humanity, are eminently desirable aims. It is satisfactory to note that of late years increased attention has been paid to subjects which had been allowed to lapse into comparative neglect by men of science. The latest contribution to literature of this description is an eminently noteworthy one. It assumes the form of a most interesting volume, entitled "Sleep Walking and Hypnotism" (Messrs. J. & A. Churchill), the author, Dr. D. Hack Tuke, being well known no less as an investigator in fields of mental science, than as a skilful physician and a man of wide experience in the treatment of the insane. Dr. Tuke's volume on "The Influence of Mind over Body" has become a classic work in the department of mental science. Writers who from an established position in science can afford to treat an abstruse topic popularly and clearly, really lay the reading public under a heavy debt of obligation. In the present instance, when we shall attempt a survey of Dr. Tuke's conclusions regarding "sleep-walking" (or somnambulism) and allied states, we may discover that our indebtedness to the author is of very marked kind. In the work before us, he has given us a volume which is thoughtful, interesting, and—as far as our knowledge of the ways of the mind and workings of brain are concerned—of high importance as an educative work.

By "somnambulism" or "sleep-walking," as every one knows, is meant that state of mind and body in which, while the subject is apparently removed from the conscious-

ness of the world ordinarily experienced in his waking life, he is able to perform many acts, ordinarily associated with that waking life alone. By "hypnotism," or "artificial somnambulism," as it is termed, on the other hand, is designated that mental condition commonly known as "mesmerism,"—a name, derived, it may be remarked, from Mesmer, the French operator who first brought the phenomena markedly into notice. The "mesmerised," or "hypnotised" subject, is really in a state of "sleep-walking" or somnambulism, which has been induced by an operator, just as, conversely, the true "sleep-walker" has fallen into his state irrespective of any outside or operative influence. The likeness between the two states, is so striking and complete, that it is now most natural they should be discussed in the light of related conditions of mind. The study of the one condition and its causes, besides, is well calculated to throw light on the nature of the allied state; and a clear gain to science thus appears, when, instead of the conditions being regarded and studied as separate states, their relationship is thus recognised. Of the importance of the study of sleep-walking, Dr. Tuke says most truly, that considering the anxiety it causes, and the peril it involves, and noting how often parents and schoolmasters seek counsel as to the best moral and medical treatment for its cure, it is surprising that so little attention has been bestowed on the subject. "One third of our existence," says Dr. Tuke, "is passed in sleep, and it would be strange if this unconscious life, in which the will, but not necessarily the action, is suspended, were not one of serious importance, both medically and legally." He is again thoroughly scientific when he says, that it is desirable first to study the facts of a *natural* state like "sleep-walking" before one attempts the study of an induced or artificial state like "mesmerism." He makes a most effective point in decrying the superstitious notions which have become attached to the topics under notice, when he adds that "it is obvious that on the vexed question of animal magnetism, the bearing of natural somnambulism is most important, as the condition and acts of the sleep-walker cannot be attributed to a magnetic fluid passing from an operator to the subject."

In the endeavour to understand the phenomena of sleep-walking and mesmerism, it is necessary to bear in mind the primary fact that the brain is not one single nervous mass, but a collection of masses, each possessing its own function and discharging its own duties in the regulation of life. Roughly speaking, we can realise the physiological nature of sleep and dreaming, and of somnambulism itself, if we suppose what seems actually to take place under such circumstances—namely, that whilst certain "centres" of the brain are asleep, and therefore temporarily paralysed and unfitted for duty, others are active and wakeful. It is this thought of the really many-sided work, duty, and nature of the brain which forms the foundation and basis of all the explanations which can be given of the curiosities of brain-action. Taking up this clue, we can understand the meaning of Dr. Tuke's phrase, "that the intense concentration of the attention on the all-absorbing dream which is being acted prevents the consciousness of all sensorial (or outside) impressions, except those immediately in relation to it." Still, the sleep-walker must be regarded as a wonderful phenomenon among living beings when we regard the careful acts he performs, his intense wakefulness to some impressions, and his deathlike indifference to others. Hippocrates said of sleep-walkers that he had "known many persons during sleep, moaning and calling out . . . . and others rising up, fleeing out of doors, and deprived of their reason until they awake, and afterwards becoming well and rational as before, although they may be pale and weak." Aristotle said that "Some are moved while they sleep, and perform many things which pertain to wakefulness, though not without a certain phantasm and a certain sense, for a dream is, after a certain manner, a sensible perception."

From the quiet, dreamless sleep, which is nearest in respect of the absence of apparent mental action to death itself, through the stage of dreaming, onwards to muttering and talking in the sleep, and thence to the acts of sleep-walking, there exists a series of graduated stages, teaching us, in truth, that somnambulism is, after all, not a solitary condition of brain, but one connected with common-place and facts of ordinary existence. "It is not extraordinary," says Dr. Tuke, "that dreaming should sometimes be sufficiently vivid to excite movements." On the contrary, it is not merely a natural, but a scientific expectation, that the activity of brain, which begins with a dream, may, under favourable conditions, pass into, and become, the exciting cause of sleep-walking itself.

In his efforts to obtain reliable information regarding sleep-walking, Dr. Tuke prepared and distributed a circular, in which persons were invited to detail the circumstances of their habits in this respect. His analysis of certain of the cases of which particulars were thus gained is extremely interesting. Thus it is in childhood and at puberty that sleep-walking is most commonly seen. Dr. Tuke's youngest case was six years old; his oldest subject was sixty-one. It is unusual for the habit to appear after twenty. Sleep-walking was common in one correspondent after an evening of absorbing work, and after days of "excited sight-seeing." In another case, suppers did not induce the habit, while too close study favoured somnambulism. The state of the health affected some, but did not affect others. The particular occupation of the subject affected the act of somnambulism. A school-girl, overworking herself at Euclid, gets up in the night, and looks for her books. A boy of eight, fond of his rocking-horse, rises at night, rides the horse, and is awoke by the motion.

(*To be continued.*)

ELEMENTARY EDUCATION AND HEALTH.

By Wm. Lant Carpenter, B.A., B.Sc.

THIRD PAPER.

In the last paper of this series (Vol. III., June 20, p. 165), attention was drawn to the essential points in the system of science-demonstration in elementary schools, which, having given such successful results in Liverpool and Birmingham, is now being extended to many other large, and some groups of smaller towns. In connection with it also, the question of "over-pressure" in the Birmingham schools was considered. As at present arranged, *every child* who remains in the school after passing the "fourth standard" (not merely a few selected pupils), has the advantage of a fortnightly lesson from a skilled and expert demonstrator, upon some branch of science capable of experimental illustration; moreover, in the intervening week this lesson is repeated by one of the ordinary school staff. Some of our readers may be frightened by the word "science," as applied to a subject of instruction for young children, but, as will be seen in the sequel,

Scott's Midlothian Oat-Flour.—There is no preparation which can be assimilated with greater facility than such a flour as this. Those who suffer from indigestion might substitute for their ordinary breakfast materials this flour, prepared according to the recipe given by Messrs. Scott and printed on the tins.—Ed Health.—[Advt.]

the term applies more to the method of instruction than to the subject taught, and implies an orderly arrangement of facts and knowledge about them, exact, as far as it goes.

I propose, in the present paper, to give some account of the course of instruction in Domestic Economy given in the Board Schools of Birmingham to every girl above Standard IV., by the chief demonstrator, Mr. W. Jerome Harrison, F.G.S. With slight modifications the account will apply also to Liverpool and to Leeds, in both of which towns also a special science-demonstrator is employed, who visits each school in succession, taking with him the apparatus and specimens necessary to illustrate his lesson; the greatest care is taken that the lesson shall be entirely oral (no text-book being used at the time by the pupils) and that no lesson shall be without illustrations. A visit to the exhibit of the Birmingham School Board at the Health Exhibition, or to the museum of specimens and apparatus for teaching Domestic Economy, shown in the Belgian Court, will give much useful information on this point.

The first year's course, or "first stage," for girls who have just passed Standard IV., is divided into thirty lessons, which, if given weekly, with occasional repetition, and allowances for vacation and interruptions, occupy a school year. The first three lessons are devoted to some general notions as to the use of and need for food, and a brief description of the digestive organs of the human body. In the next six lessons, the first of which deals mainly with oxygen, the composition and properties of air and of water are demonstrated by experiments, and the differences between, and tests for, pure and impure air and water are pointed out. Great stress is laid upon the various sources of carbonic acid in the air, its poisonous properties, and the simple tests for its presence, the lime-water test for the carbonic acid produced by combustion and respiration being especially insisted on, and experimentally shown, as well as simple illustrations of the dangerous properties of this terrible source of ill-health among the poorer classes. This naturally leads up to the maintenance of the bodily temperature (98° Fahr.); and the next eight lessons are devoted to a consideration of the various kinds of foods, which are thus divided:—Lesson 11, mineral foods and their uses; 12, 13, carbonaceous foods—sugar, starch, and fat; 14—16, nitrogenous foods; 17, 18, compound foods—milk, butter, eggs, &c.—and the reasons for a mixed diet. Beverages, condiments, and adulteration form the subject of the next four lessons, while lessons 23—27 inclusive deal with clothing in its various aspects. The reason of the need for clothes, and the *rationale* of their action are explained with the help of a thermometer, and a few simple experiments on radiant heat. The various fibres of cotton, wool, silk, &c., are shown under the microscope, and their sources, as well as their mode of manufacture, are explained. One lesson is devoted to useful advice in the selection and purchase of clothing, and warnings are given against the use of tight stays and mis-shapen boots. The last three lessons are devoted to the chemistry and the mechanics of washing, both the person and clothes, careful demonstrations being given of the structure of the skin, and of the effect of soda, soap, &c., on various fabrics.

For girls who remain in the school after passing Standard V., a similar course of thirty lessons in stage II. is arranged, in which the functions and composition of food are treated more in detail than in stage I., and the physical and chemical principles concerned in warming, cleaning, and ventilating a dwelling are carefully demonstrated.

Swimming and Ling's Swedish Exercises.—Mrs. Florence Williams, Certificated Teacher. Schools and private families attended.—The Crown Baths, Kennington Oval, S.E.—[Advt.]

The third stage, for girls above Standard VI., comprises rules for health and for the management of a sick room, practical instruction in the preparation and culinary treatment of food, and lessons on expenditure and savings.

The information given in these three courses may fairly be described as "The Science of Home Life," and under this title Mr. Harrison has issued, through Messrs. T. Nelson & Sons, a little book containing the substance of his lessons as thus given in the first stage, which will be found a most useful compendium for teachers; but in his preface he says, "To be thoroughly effective, the teaching of domestic economy must be oral and practical." And this cannot be too often insisted on, as regards *scientific teaching*, whether the subject-matter be literary or scientific. A lesson on an air-pump may be thoroughly unscientific, while one on the infinitive mood may be scientific in the highest degree.

A scheme of the same kind, in which elementary mechanics and physics are taught, is carried out with the boys; hence *every child* above Standard IV. gets some teaching of this character, and its importance cannot possibly be overestimated. As to the cost of the system, it may suffice to state, shortly, that in large towns it amounts to about £10 per year per school department.

In the next paper I propose to consider, at greater length, the question of over-pressure, and of the effect of science teaching of this kind as a relief from such overstrain.

The Æolus Waterspray Ventilator which was fixed eighteen months ago in the Physicians' Consulting-room of the London Hospital has given such satisfaction to the medical staff that another installation of the Æolus system in the Throat Consulting-room has been resolved on. The work is now in hand.

Some mothers and nurses act under the belief that the stronger the food the stronger will the babe become, and carry this notion to its extreme, thus a woman has been known to give her tender babe meat and beer. When, in addition to their present course of studies, all School-board children had been taught chemistry and physiology, such displays of ignorance may possibly become rare; at present they are not so.

When a room is shut up even for a day, unless the room be very large indeed, there is always that peculiarity observed by sensitive persons, to which would be given the name of closeness. Yet there are people who do not seem to observe this, and who live their lives in rooms in which this closeness may be constantly observed. I have often reflected on this peculiar condition. Surely, if oxygen removed all impurities, these impurities ought to have been removed, since the oxygen of the air is never absent from these rooms, except to such a small extent that the estimation of the change is extremely difficult. If we lift up a window and allow the air to blow into the room, so as to entirely replace the original air, we do not at all times attain efficient aëration. It takes but a few minutes in a climate like this, where there is considerable motion of the air, to renew the atmosphere of a room entirely; we may judge of this by making a trial upon a visible atmosphere—viz., one pretty well filled with smoke. We see how rapidly with an open window every trace may be removed from the farthest corner, and yet this new air is not sufficient to refresh the room, and closeness is the characteristic still complained of. It is the custom in well-regulated houses not to renew merely the air, but to cause the air to blow through the house for a considerable time every day when the weather permits it.—*Dr. Angus Smith.*

Personal Health

"Be timely wise;
With health all taste of pleasure flies."—*Gay.*

INFLUENCES OF SCHOOL LIFE ON EYESIGHT.*

By Simeon Snell.

Ophthalmic Surgeon to the Sheffield General Infirmary.

FIRST PAPER.

Much is said now-a-days as to the effects of over-pressure in our educational systems. Many of our readers will, however, recollect that, important as this subject undoubtedly is, it is by no means new. For Charles Dickens, as he recognised and so vividly pourtrayed the bad housing and overcrowding of the poor, with the attendant evils, just now deservedly commanding attention from the legislature, no less forcibly delineated the effects of "hot-house" and the "forcing system" of education on the youth of his time. Many will thus recall the circumstances attending the selection of a school for little Paul, in "Dombey and Son," and how one was chosen, where, as Mrs. Pipchin expressed it, "there is nothing but learning going on day and night," and the description of this Dr. Blimber's establishment, its inmates, and the modes of teaching pursued. "Nature was of no consequence at all," and it is asserted of young Toots, that "when he began to have whiskers he ceased to have brains." Here is to be found, expressed in the great novelist's own unequalled style, much of what the to-day school reformers would themselves assert.

In these articles, however, it is only intended to draw attention to the influences exerted by school life on eyesight. Over-pressure, it may at once be mentioned, like other causes acting prejudicially on the health of the scholars, will agravate the evil tendencies to be alluded to.

In the normal eye, distant rays of light are brought to a focus on the retina, and for near objects, with the aid of what is called accommodation, by increasing the convexity of the lens, this is still the case. In the myopic or short-sighted eye, the pencil of light meets, however, in front of the retina, whilst in the hypermetropic, or long-sighted, the point of union is behind the retina. Besides these, there is a third deviation, called astigmatism, in which the curvature of one meridian is different from that in the other. The effects resulting from this last-named condition are relieved by the employment of the appropriate spectacles (cylindrical), and we shall not have occasion to particularly refer to it, separately from the other "errors of refraction" I have mentioned.

The eye naturally seeks after a clear image, and it will be at once evident, that with the long-sighted—if we consider this condition first—under ordinary circumstances this cannot be obtained. For the hypermetropic child is only able to bring the rays of light to a focus on the retina by an extra use (strain) of the focussing muscle; this it is enabled to accomplish for a time, but after a longer or shorter period, according to the degree of the defect, with comfort it is no longer possible. Then, after reading, the print in the book or in working the stitches in the garment run altogether, become indistinct, the eyes tire, and the child seeks relief by closing the eyes; again, however, on resuming its task the symptoms recur. This constant strain is without doubt, causing as it does conjestion of the globe of detriment to the eyeball, and the nervous irritation becoming reflected is a frequent source of the headache so common among school-children. The symptoms mentioned are relieved by properly-correcting convex spectacles. And then there is no reason why the long-sighted child should not become a good scholar. In such a case as has been portrayed, sometimes, instead of the little muscle performing the focussing of the eye, becoming relaxed, when the eye is no longer intent on near work, it remains constantly on the strain, a condition of "spasm" being produced, and causing a fictitious short-sightedness. If a qualified surgeon has not seen such a case, but has been supplied by an optician with concave glasses, the state is, of course, rendered worse. It is thought that this condition is more common of late, owing to the constant pouring over fine, near work required under our educational system. It may be mentioned also that perhaps 90 per cent. of the cases of ordinary squint observed in children is dependent on the flat condition of the eye. Avoiding the straining spoken of, and causing them to be occupied with large objects, and, when convenient, the adaptation of the suitable spectacles, would lessen the number of squinting children which our elementary schools do so much to cause.

Longsightedness is always congenital, but its converse, shortsightedness, is either so or acquired. Be it, however, one or the other, once present, it is prone, especially in early life, to become increased in degree. It may be looked upon, also, as a direct result of our civilisation; and it is in the production and aggravation of this condition that the influences of school life exert their most baneful effects, and with which our remarks have more particular reference. The prevalence of short sight among the Germans is well known, and it may earnestly be hoped it may be long before a similar frequency exists in our own country. Still, it is generally held that shortsightedness is on the increase among us, and that school life is an important factor in its causation; and, once occasioned, this affection is liable to become aggravated as long as the prejudicial conditions surrounding the scholar remain. The long continuance of vision for near objects, in it may be and indeed often is, children with brain and body fatigued, occasions and increases it. The muscles producing the convergence necessary for this near work are kept tense, and exert a degree of pressure on the eyeball, and, as a result, the globe yields and becomes lengthened, the congestion which this convergence also causes facilitating the process. The effects of studious habits on this complaint were recognised as long ago as 1812, by Ware, and, whilst he examined 1,300 children at the Chelsea Military School, and discovered only three inconvenienced from shortsightedness; at the colleges at Oxford and Cambridge he found it very prevalent. In one college at Oxford, 32 out of 127 members wore spectacles or hand-glasses. Within recent years, more exact statistics have been furnished by observers in different countries than it was possible for the distinguished oculist of that day to contribute. Dr. Cohn, of Breslau, in this way examined 10,060 pupils, of which number 1,486 were in village schools and 8,574 in town schools. Ten per cent.

* A lecture delivered before the Sheffield and District Elementary Teachers' Association.

Medical and Sanitary Exhibition, 1881.—Reward of Merit.—International Health Exhibition, 1884.—Stand 69.—Diabetes. Van Abbott's Gluten Bread, and all other suitable Foods for Diabetics, Dietary Table, Menu, Cooking Receipts, and Price List, post-free on application. Delicate Children. Van Abbott's Hypophosphite of Lime Biscuits, for Children suffering from Debility, Deficiency of Bone, or Ricketts. See the *Lancet* and Health. Constipation. Van Abbott's Bran Biscuits. Dyspepsia. Van Abbott's Malt Biscuits. Van Abbott's Vegetable Bread and Milk, Saccholac for Infants, Imperial Granum, Rolled Avena, and all American Cereals for Infants and Invalids. Hathorn Table-Water direct from the Springs in Saratoga, U.S.A. G. Van Abbott, 5, Princes-street, Cavendish-sq., London, W.—[Advt.]

of this whole number were shortsighted. Divided into classes, the proportion is of peculiar interest. Thus:—

In 5 village schools the percentage was	1·4
„ 20 elementary schools.....	6·7
„ 2 higher girls' schools	7·7
„ 2 middle schools	10·3
„ 2 royal schools	19·7
„ 2 gymnasia	26·2

The rise in percentage in the higher schools will have been noticed. At St. Petersburg, also, Erisman examined 4,358 pupils. Among those employed two hours daily he found a percentage of 17·7, those working four hours 29 per cent., those working six hours 40 per cent.

Statistics such as these by competent observers in all parts could readily be added to were it necessary, or did the limits of these articles permit it. It may be well, however, to recall the fact that among races with very elementary or no education the percentage of short sight is very small. Savages are, of course, noted for their wonderful range of vision, and Mr. Macnamara has stated that he examined a large number of Hindoos and found myopia practically absent. Among negros, again, the percentage is stated to be very small, and, moreover, those who, for statistical purposes, have examined the eyes of the newborn, assert the infrequency of short sight at that early period.

DR. HOWARD'S METHOD OF ARTIFICIAL RESPIRATION FOR THE TREATMENT OF PERSONS APPARENTLY DROWNED.

Rule I.—*To Drain and Force Water from the Lungs and Stomach.*—Instantly place patient face downwards, a hard roll of clothing being placed beneath pit of stomach to raise it as much as possible above the level of the mouth. Put one wrist of patient under his forehead to raise mouth off the ground. With hands well spread upon patient's back above the roll of clothing throw upon it your whole weight with a forward motion, and keep up the pressure about three seconds, so as to force all water from stomach and lungs out of the mouth. Repeat this once or twice, and then quickly proceed with

Rule II.—*To make the Patient Breathe.*—Turn the patient face upwards, the same roll of clothing being now beneath his back, the shoulders slightly drooping over it. Bend head backwards and downwards, putting the throat on the stretch to the utmost. Place hands of patient above his head and keep them there. Rip or strip all clothing from waist and neck.

Now, kneel astride patient's hips. Grasp front part of chest on both sides pit of stomach; your thumbs pointing to patient's chin; your fingers fitting into the grooves between the short ribs.

Fix your elbows firmly, making them one with your sides and hips; then firmly pressing the sides of the patient together, and using your knees as a pivot, throw yourself slowly forward until your whole weight presses upon his chest. End this pressure with a short push which *suddenly* jerks you back again to the upright kneeling position. Rest three seconds while the ribs spring back; then repeat this bellows-blowing movement from seven to ten times a minute with perfect regularity so that foul air may be pressed out and pure air be drawn into the lungs. Take the utmost care, on the occurrence of a natural gasp, not to interrupt it; but, as the ribs fall, gently press them and deepen the gasp into a longer breath. Continue for at least an hour, or until the patient breathes naturally.

Note.—The above directions must be used on the spot the first instant the patient is taken from the water. A moment's delay, and success may be hopeless. Prevent crowding round the patient; plenty of fresh air is important. If a second person be present, the tongue should be held out of the corner of the mouth by the thumb and finger armed with a piece of dry cotton or linen rag. He can at the same time attend to patient's arms, keeping them above his head. After the breathing is regular, let patient be rubbed dry, wrapt in warm blankets, and left to rest and sleep.

A Valuable Invention.—It is gratifying to learn that Mr. R. Adams, of 17, Blackman-street, London, S.E., whose fanlight-openers and silent door-springs are being extensively used, has received large orders for his Patent Reversible Window. The sashes, although they slide up and down in the usual way, can be instantly turned inside out, enabling anyone to clean each side of the glass with ease, while standing in the room.—[Advt.]

Better to Wear Out than Rust.—The late Prof. Samuel D. Gross, at a dinner given to him in Philadelphia on April 10, 1879, said: "After fifty years of earnest work I find myself still in the harness; but although I have reached that age when most men, tired of the cares of life, seek repose in retirement and abandon themselves to the study of religion, the claims of friendship, or the contemplation of philosophy, my conviction has always been that it is far better to wear out than to rust out. Brain work, study, and persistent application have been a great comfort to me, as well as a great help; they have enhanced the enjoyment of daily life, and added largely to the pleasures of the lecture-room and of authorship; indeed, they will always, I am sure, if wisely regulated, be conducive both to health and longevity. A man who abandons himself to a life of inactivity, after having always been accustomed to work, is practically dead."

A Floral Time Table.—It is a most interesting fact that certain flowers open and close their blossoms at least once every twenty-four hours, although the cause of this action is as yet imperfectly known. In some cases it may depend on heat, in others on light being present in sufficient force. The fact has long been known. It was known to Linnæus, and some of the early gardeners mention floral clocks and dials among the quaint conceits offered to the readers of their books. Here is a list of plants which open at different hours during the day. The first column of figures gives the time of opening in the morning, and the second column shows the time of closing.

	H.	M.		H.	M.
Goat's beard—Tragopogon luteum	3	5	...	9	10
Late flowering dandelion—Leontodon serotinum .	4	0	...	12	1
Hawkweed—Picris echioides	4	5	...	12	0
Alpine hawk's beard—Crepis alpina	4	5	...	12	0
Wild succory—Cichorium intybus.....	4	5	...	8	9
Naked stalked poppy—Papaver nudicaule	5	0	...	7	0
Copper coloured day lily—Hemerocallis fulva.....	5	0	...	7	8
Smooth sow thistle—Sonchus lævigatus	5	0	...	11	12
Field bind weed—Convolvolus arvensis	5	6	...	4	5
Common nipple wort—Lapsana communis	5	6	...	10	0
Spotted cat's ear—Hypochæris maculata	6	7	...	4	5
White water-lily—Nymphæa alba.....	7	0	...	5	0
Garden lettuce—Lactuca sativa.....	7	0	...	10	0
African marigold—Tagetes erecta.....	7	0	...	3	4
Mouse-ear hawkweed—Hieracium pilosella.....	8	0	...	2	0
Proliferous pink—Dianthus proliferus	8	0	...	1	0
Field marigold—Calendula arvensis.....	9	3	...	3	0
Purple sandwort—Arenaria purpurea	9	10	...	2	3
Creeping mallow—Malva caroliniana	9	10	...	12	1
Chickweed—Stellaria media	9	10	...	9	10

—*The Garden.*

The Family Circle

"The child is father of the man."—*Wordsworth.*
"In bringing up a child, think of its old age."—*Joubert.*

SCARLET FEVER: HOW TO LIMIT INFECTION

By W. Allan Jamieson, M.D., F.R.C.P.

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(From the *Edinburgh Medical Journal.*)

III.

A question is often asked, When is the person who has had scarlet fever free from the risk of infecting others? And another, What measures should be adopted with regard to the apartment in which he has spent the period of his illness? As to the first, it is the current opinion that desquamation (or skin-scaling) should be completed before he is permitted to mingle with those who have not had the disease; and when no precautionary measures have been adopted while he was ill, this is a safe rule. But it must be remembered, as bearing on this point, that the process of scaling neither commences nor is terminated in all cases at the same period. There are various causes, besides the severity of the disease in the individual instance, which affect this. Peeling usually shows itself, in cases of moderate severity, during the third week, and may be ended by the sixth. But the commencement is frequently later, and the completion correspondingly protracted. When the treatment indicated has been faithfully carried out, the desquamating flakes of skin have no infectious properties, and therefore the state of the patient's health and the stage of his convalescence are the best guides as to when he should be permitted to mix with others. I believe it is quite unnecessary, under such circumstances, to wait for the end of scaling. Indeed, the rule is so often disregarded that it is little of a safeguard, and patients sometimes peel several times.

As to the room, much the same reasoning applies. It should be very thoroughly cleaned, the floor and woodwork washed, and the papered walls swept down. I speak exclusively of cases which have been treated in accordance with the principles laid down. Fumigation by means of sulphur pastiles is known to destroy the fungi in wine casks which have been thoroughly washed previously, and to preserve them sweet, provided means be taken to prevent the admission of air before the cask is again filled with wine. Whether such fumigation, alone and apart from other measures, has the same destructive effect on the contagion of scarlet fever may be inferred, but has not, so far as I am aware, been proved. It must be borne in mind that, before fumigation, the patient, the source from which all this infection emanated, has been removed elsewhere.

Now, it may fairly be asked, What proof can be afforded that by the simple means described the spread of scarlet fever can be effectually checked? The following case may be regarded as one in which the plan was subjected to an almost crucial test:—A child in a family where there were four others younger than herself who had not had scarlet fever, contracted the disease from a neighbour's child in a street where it was prevalent. She was seen as soon as the rash had come fairly out. The house consisted of two rooms, but isolation, in the sense of completely separating the family, was impossible, from various circumstances in the house, and the parents objected to the removal of the child to an hospital. The plan of treatment which I have sketched was carefully carried out by an anxious and intelligent mother; and though all the family used the room more or less by day and night during the entire course of the child's illness, none of the four unprotected children took the disease. The mother at this time had an infant which she brought up on the bottle, and in making this ready she handled the milk freely, and she was the sole attendant on the other children. This occurred a year ago.

In another instance, a boy aged thirteen was laid up with a severe attack of scarlatina. He was delirious for days. The house also consisted of but two rooms, and there were three other brothers older, besides the father and mother, as occupants. These assisted the mother to bathe the boy, and otherwise to carry out the treatment. None of these took the disease.

So much for negative evidence; but the fact remains that in no case—and they are many—in which this treatment has been followed has there been a fresh case after its commencement. The contagium of scarlet fever is not very, if at all, volatile, though it can be carried by air in motion. In this respect it differs from that of measles, which is highly volatile. We can, therefore, fix the contagion of scarlet fever, while we cannot that of measles; and I wish to lay before the profession a plan which, I have no doubt, will soon be extensively tested, and, I have as little doubt, with a satisfactory result.

SUMMER DIARRHŒA OF CHILDREN.

The season is close at hand when a great increase in the number of deaths of young children in our large cities is to be expected. The combination of high temperature with the conditions existing in such cities, and especially in those localities inhabited by the poorer classes, is certain to produce is such children diarrhœal affections, which in many cases are fatal. Precisely why this should be the case we do not yet know, but there is reason to think that it is due to a combination of several causes, of which high temperature and sudden changes in temperature are most important. In England it has been observed that summer diarrhœas are especially prevalent in Leicester, although it is not hotter there than in many other towns. In the country, hot weather does not produce this effect to anything like the extent which it does in towns, and it is well known that the removal of a young child suffering from this affection to the country is one of the surest methods of cure. In many cases it seems as if these summer diarrhœas and certain forms of cholera-infantum were due to minute organisms, in which the high temperature has produced an unusual state of activity, and that cow's milk, as taken from the bottle, is the probable means by which these infective particles gain admission to the system.

Dr. N. S. Davis, of Chicago, who has given special attention to this subject, concludes, with regard to bowel diseases, that they are far more destructive to children than to adults; that they prevail almost exclusively during the warmer months of the year, and especially in that part of the United States north of the north line of the Gulf States and east of the Rocky Mountains, and that they usually occur in groups, corresponding with waves of high temperature, one of which usually occurs in the latter half of June, two or more in July, and one or two in August.

Scott's Midlothian Oat-Flour.—Messrs. A. & R. Scott, of Kingston, Glasgow, and Finsbury-square, London, have prepared a singularly pure and nutritious "Oat-flour," which bids fair to take high rank among the food products which are specially adapted for infants and invalids, and for the use of dyspeptics in particular, whose digestion is weak, and whose stomachs refuse to assimilate foods of ordinary kind.—Ed. Health.—[Advt.]

A continuous high temperature has less effect than sudden variations.

While ignorance and poverty, producing uncleanliness, overcrowding, and insufficient or improper food-supply, are also powerful agents in the production of this class of diseases, it must not be supposed that the children of the well-to-do classes, no matter how cleanly and comfortable their dwellings, escape these affections.

They chiefly affect children under two years of age, and are greatly influenced by the character of their food. Practical measures for the prevention of these diseases relate mainly to the regulation of the diet, the free use of cool water in the form of baths, and the affording of opportunities to the child to breathe pure air by excursions to the country or on the water. Of late years much has been done in this last direction by public charity, in providing the means for such excursions, the most extensive and complete organisation for the purpose being probably the Thomas Wilson Sanitarium of Baltimore, which, we believe, goes into active operation this summer.

For a large part of our city population, and especially for the tenement-house class, the precautions of most practical value are these connected with the food of the infant. This food should be milk—milk which has been preserved from contamination, which has not stood in open vessels in foul and crowded localities, nor been placed in half-cleansed nursing bottles.

The mother's milk is best of all; next comes the milk of a wet-nurse, and next fresh and sweet cow's milk.

The special corps of visiting physicians organized by the New York City Board of Health to inspect crowded and unhealthy localities during the hot weather, has done much good by telling the people what to do, and by stimulating them to take some simple precautions. It is not, however, the poor alone who are ignorant and careless in this matter, and in many houses of those who would call themselves educated and well-off, the little ones sicken and die, because they are improperly fed, and not given a chance to get fresh country air.—*Sanitary Engineer.*

MEAT TEAS AND LATE DINNERS.

The practice of taking tea with a principal meal, or what is called a "meat tea," is not to be commended. Tea does not promote digestion of the food in the stomach, and especially is not adapted to accompany meat, but rather bread and farinaceous articles. "Meat teas," as a daily habit, are more likely to create dyspepsia than not. The proper time for tea is an hour or two after food, or when the stomach is empty. What is called dinner, among the upper classes, in the present day, would have been called supper by our forefathers, and takes place at even a later hour than the old supper. To this there would be little objection, provided the hour of retiring to rest were correspondingly deferred, and the preceding interval of fasting were not unduly extended. For though a certain period of rest, after a hearty meal, assists the process of digestion, digestion is impeded by continuous sleep, which is pretty certainly made uneasy and disturbed when the stomach has been recently charged with a full meal. Quiet and refreshing sleep is best secured when the wants of the system have been satisfied by a meal in great measure digested, and when the functions of the stomach need no longer be in full activity; but a long fast, and repletion, are alike hindrances to sleep. If some hours are to elapse before retiring to rest, after the evening meal —call it either dinner or supper—to be spent either in the quiet of domestic life, or in the fatigue and excitement of society, digestion will have been pretty nearly completed before sleep is sought, and no harm ensues from the full meal, assuming that in character and amount it has been in accordance with ordinary prudence and temperance. How shall we attempt to lay down rules for general guidance in these respects? It is, no doubt, difficult, owing to the very various circumstances in which our lives are past. Some leading principles may, however, be stated, which will be found to be of very general application. In the first place, great caution is needed in sitting down to the chief meal of the day, when both mind and body are exhausted by long-continued labour and abstinence. In the next place a rapid, hurried mode of eating should be avoided, especially if the repast commences with some solid dish. There are advantages in commencing with some light food, such as soup or fish, in small quantities, not calling for the full powers of the stomach, whilst the gastric juice is not in full flow, and when the muscular powers of the stomach partake of the general enfeeblement of the system. It is frequently supposed to be undesirable to commence with fluids, and this is probably the case if any large amount be taken, but not otherwise, in the case of a nutritive fluid like soup, by the gentle stimulus of which the secretions of the stomach are called forth. It is certainly preferable to the glass of sherry or prefatory dram.—*Cassell's Book of Health.*

The Need for Sanitary Laws.—Every year we see many lives lost, not only in tenement-houses, but also in the houses of well-to-do citizens, from diseases induced or aggravated by bad plumbing, faulty drainage, or other preventable causes, which lives might have been saved were the people as wise and alert in sanitary matters as in that of fire, and public opinion as earnest in maintaining organised protection against the one class of dangers as against the other. We now want some of the legal safeguards erected against the danger of slow death by preventable disease, which are already provided against sudden death by accident. We have guarded against the lesser causes of preventable death, now let us be equally earnest and enthusiastic in guarding against the greater danger—that from accumulated and accumulating filth. We want a plumbing and house-drainage law, with the means of administering it. We want a law forbidding the building of any privies or cesspools on sewered streets.

Paper-Hangers' Paste.—Beat up four pounds of good white wheaten flour in cold water—enough to form a stiff batter—sifting the flour first, and beat it well to take out all the lumps. Then add about two ounces of well-powdered alum. Have a quantity of boiling water ready at hand; take it boiling from the fire, and pour it gently and quickly over the batter, stirring it rapidly at the same time; and when it is observed to swell and lose the white colour of the flour it is cooked and finished. The quantities here indicated should make about three-fourths of a pail of solid paste. It is recommended not to use it while hot, as when cool it adheres better and goes further. A little cold water poured over the top of the mass will prevent the formation of a skin from the drying out of the paste. When about to use, a small additional quantity of cold water should be added, so that the paste will spread easily and quickly under the brush. In warm weather this paste must be used quickly, as it cannot be kept for many days without fermenting and souring, when it becomes thin, watery, and useless. If it be desired to avoid this the addition of a few drops of carbolic acid to the mass when it is prepared will enable it to be kept almost indefinitely.

Recreation and Health

"Health is the vital principle of bliss,
And Exercise of health."—*Thomson.*

HEALTH AND HOLIDAYS.

FOREIGN HEALTH-RESORTS.—VIII.

By a Physician.

Ems.—A highly-fashionable thermal spa in Germany, twelve miles from Coblentz, and about fifteen from Wiesbaden. It is situated in the beautiful valley of the Lahn, at a height of about 290 ft. above sea-level, and is remarkable for three things. Firstly, the select character of its company. This is a fact which has both its advantages and disadvantages. Here one meets with none of the noisy, light-hearted gaiety which is so characteristic of some of the French health-resorts; but everything is conducted in a grave, almost solemn fashion, that after a time is apt to become intolerably wearisome. It is as if Ems were inflated by an idea of its own importance in having been visited in the past by such illustrious notables, and were a trifle above itself. We have known the same thing in men who have been taken notice of by people greater than themselves. Secondly, the natural beauty of its situation—along the banks of the river Lahn that is to say, between steep, richly-wooded hills, the vegetation of which, not only in the lower slopes affords protection for some of the villas, but in the upper reaches gives interest and beauty to the many charming walks and excursions. At the summit of one of these hills—1,300 ft. high—a very extensive view of the surrounding neighbourhood may be had, including a glimpse of the Rhine, ten miles distant. Thirdly, that of all the German mineral waters, containing to any extent carbonate of soda and chloride of sodium, or common salt, these are the only ones that are warm. There are in all twenty springs at Ems, the Kessel Brunnen (120 deg. Fahr.), being the hottest, and the Victoria Quelle (80 deg. Fahr.), the coolest, while the Bubenquelle (104 deg. Fahr.) has an especial reputation for the diseases of women; and their application varies in proportion to their temperature, some being administered internally, others externally by means of baths, douches, inhalations, &c. Ems is above everything a ladies' health-resort, and is indicated in all cases where a soothing treatment is required. The waters are also successfully employed in many affections of the throat and air-passages, in chronic gout, dyspepsia, and certain forms of liver complaint. The climate is mild, but liable, from the confined position of the town, to become oppressive in the summer-time. The best months to visit it, though not the most popular, are September and May. Amusements are very varied, and the attractions, in the way of public gardens, promenades, &c., many. Population, 8,000, which is increased during the season to about double that number. Hotels:—Hôtel d'Angleterre, Hôtel Darmstadt, Hôtel de Russie, Quatre Saisons, Prince of Wales. Fares from London, *viâ* Calais, Brussels, Cologne, and Coblentz: 1st class, £3. 17s. 6d.; 2nd class, £2. 16s.

Etretat.—An extremely picturesque and charming watering-place in Normandy, with very interesting surroundings and beautiful cliffs. Old customs still prevail here. On Ascension Day the local clergy repair to the beach and, in a curious ceremony, bless the waves, at the same time exhorting them to respect their limits and come no further. As a fact, however, the waves don't seem to think much of this warning, for almost every year they dash the huge boulder stones that have been put to bar their progress on one side, and at times the sea rises very considerably higher than the beach, thus rendering the bathing hardly so pleasant as at other watering-places along this coast. Still, it is actively indulged in, men and women taking their matutinal dip together, and at the bathing hour the terrace presents quite a gay and animated appearance. The climate is dry and comparatively mild. Hotels: Hôtel Blanquet, Hôtel Hauville, Hôtel des Bains, Hôtel des Deux Augustins. The best way of reaching Etretat is to go by steamer from Southampton to Havre, and thence by coach. Fares from London (about)—first class, £1. 9s. 6d., second class, £1. 2s.

Fécamp.—If scarcely so interesting in itself, nor so picturesquely surrounded as the preceding health-resort, from which it is distant ten miles, Fécamp can, at any rate, boast that it is a town of considerable proportions, numbering, indeed, some 12,500 inhabitants, and has a history to show. Fécamp, according to an ancient legend, was founded somewhere about the time of St. Joseph of Arimathea. It consequently possesses many quaint buildings and venerable ruins. The town practically consists of one long street, extending inland; a decided disadvantage in one way, for it takes about twenty minutes to go from the centre of the town to the sea-shore, while those located in the hotels on the beach have a long up-hill walk before them, ere they can reach the town. However, this slight drawback apart, Fécamp offers many inducements to the health seeker. The climate is mild and agreeable, and the excursions in the neighbourhood many and varied, while at the "Établissement des Bains-de-Mer," on the beach, ample amusements of a cheerful kind are provided. The sea bathing is good; beach shingly; living cheap. A peculiar custom that obtains at Fécamp is that of lining the warm sea baths with a layer of seaweed in order to impart to the water the properties of bromine and iodine. Hotels: Hôtel des Bains, Hôtel du Nord. Fares: from London *viâ* Newhaven and Dieppe, thence by coach (about) first-class, £1. 5s.; second-class, 18s.

Amongst the most recent applications of the Æolus Waterspray system of cooling, ventilating, and warming, are those which are being made to St. Mary's Church, Tenby; the University of North Wales, at Bangor; Mr. Findlay's house, Edinburgh; and the Clerks' Café, Liverpool.

Treatment of Hoarseness in Speakers and Singers.—M. Corson advises the placing in the mouth of a piece of borax, about two or three grains; it produces an abundant salivation, and the voice becomes clear. He also recommends the use of a couple of grains of potassium nitrate in a glass of sugar and water, shortly before using the voice—of a gargle with six or seven ounces of a decoction of barley, one to two drachms of alum, and two drachms of honey of roses.

To Fasten Show-Bills to Windows.—Transparent show-bills may be cemented to glass windows in the following manner:—Very fine white glue, or preferably clean parchment chippings boiled in distilled water in glass or enamel until dissolved, must be applied very evenly with a soft hair-brush to the face of the bill. Then press it on the glass, and in a few minutes the bill will be firmly fixed. Glass may be fixed to glass in this way, and the cement will bear a good deal of dry heat.

COCA OR CUCA LEAVES.—The new stimulant, gives renewed life and vigour to the *Weary* and *Overworked*. Dr. Blunt, of Northampton, says:—"The recuperative powers of this restorative are truly astounding." Sample packets, together with medical and scientific opinions, 13 stamps, post free, from J. T. Marks & Co., 17, Newcastle-street, Farringdon-street, E.C.—[Advt.]

Jottings from the Journals

"Th' ingredients of health and long life are
Great temperance, open air,
Easy labour, little care."—*Sir Philip Sidney.*

New Apparatus for the Relief of Deafness.—Professor Politzer describes in the *Wiener Medizinische Wochenschrift* a little instrument invented by himself to aid those whose power of hearing is impaired. The principle is to transmit the vibrations from the pinna or outer ear to the drum-membrane. Politzer opposes Votolini's opinion that the cartilage of the ear is a poor conductor of sound, and, on the contrary, believes that the pinna, by means of its vibrations, is of great importance in the mechanism of hearing. His apparatus consists of a small elastic drainage tube, one end of which is bevelled off so as to rest evenly against the drum-membrane, while the other end is curved slightly, and by its elasticity presses gently against part of the outer ear (or anti-helix). Near its outer extremity the tube is attached to a small concavo-convex rubber plate. The plate is fitted so that its concave side lies in apposition with the concavity of the ear-fold. The idea of this attachment is to increase the conducting power of the instrument and to transmit with greater facility the vibrations of the pinna. In a large number of experiments made to test the value of this instrument, the inventor found that in most cases the hearing distance for the voice was considerably increased, in some instances from two feet without to fifteen or twenty feet with the apparatus. In many cases the hearing distance for the watch was also increased, though in no such striking degree as that of the voice. In cases in which the drum-membrane was partially or entirely destroyed, it was found necessary to attach an artificial drum to the inner extremity of the tube. In deafness due to diseased union of the ossicles or to disease of the inner ear, little or no improvement was obtained by the employment of the tube.

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Acetic Acid Treatment of Cholera.—Mr. C. R. Francis says:—In the *Indian Medical Gazette* for September, 1866, Dr. Greene, being then civil surgeon of Tipperah, published the result of the "acetic acid" treatment in thirty-four cases of cholera. It was eminently successful. Dr. Greene could not explain the rationale of the plan; which was also adopted by Dr. B. C. Chandra. After reading the account of Dr. Greene's cases (see *Indian Medical Gazette* for October, 1866) in the Sonthall Pergunnales (where he was civil surgeon), with equal success, Dr. Chandra treated nineteen cases, with a death-rate of 5·2 per cent. The mortality at Tipperah had been 10·8 per cent. Such a percentage in cholera is remarkably low. It is possible that further experience might show that this plan of treatment was, in reality, no better than many others which have been tried in India; exceedingly promising at first, but less efficacious in subsequent epidemics. Still, with the aid of the light thrown upon the subject of cholera by Dr. Koch's discovery of the cholera-bacillus, it seems worthy of repeated trials, for the following reasons. (1) Acetic acid is a powerful antiseptic. I believe I am right in saying that Surgeon-General John Murray, shortly before he retired from the India Medical Service, published the effect of certain acids upon the cholera-germs, as examined under the microscope; from which it appeared that, whilst they resisted the action of some acids, they succumbed at once to acetic acid. I do not remember whether any one particular germ was thus affected, or whether all the forms of microscopic life found in choleraic excreta were destroyed. Acids—I am not aware if acetic acid was, in his hands, especially destructive—were found by Dr. Koch to be fatal to the bacillus which revels in alkaline fluids, like the dejecta in cholera. (2) Acetic acid stimulates the cutaneous and renal secretions, and thus aids in equalising the circulation. (3) It is not unpleasant to take, and would tend to ally the thirst, often very distressing in cholera. (4) It is an agreeable and popular form of fumigation. The mode of administration was this:—Acetic acid, ten minims; water, one ounce; every half hour until reaction began to set in, when the interval was increased to one hour; and, as the improvement continued, to two and three hours, until convalescence was established; cold water, slightly acidulated with vinegar, being allowed as a drink freely. A wood fire, over which a small pot of vinegar and water was placed, was kept up in the room; through which the fumes of vinegar were thus diffused. There is nothing better than sulphurous acid vapours for fumigating the outer air. When the acetic acid ran short, vinegar was given, one ounce with an equal quantity of water for the first dose, followed, at half-hour intervals, with half the quantity of each ingredient, with the same success. Acetic acid, or vinegar, was also given in cases of diarrhœa (possibly premonitory), which did not, consequently (?), pass on into cholera. I confess that, in the present state of our knowledge, I should not like to depend upon the acetic-acid treatment, as did both Dr. Greene and Dr. Chandra; but taking opium, in some form, as the sheet-anchor (except in the stages of collapse and reaction), I would, for the reasons given, advocate it as a valuable adjunct in the treatment of the disease throughout.—*British Medical Journal.*

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"Going to the Wash."—"While, as a matter of course, you will agree that cleanliness is an important part of preventive medicine, you will no doubt as readily admit that the earlier in the week the humble housewife gets through her wash, and the sooner her richer neighbour who can afford to 'put out' everything sends the soiled linen of the household away, the better it will be for the health of the families concerned. Now, as travellers through the suburbs of London are aware, the laundrymen and women make Monday their grand collecting-day for soiled linen, and many of them send round properly-appointed carts and vans. But there is another, and perhaps larger, class of laundry people who cannot, or do not, use conveyances for this purpose, but who send girls or women mostly to fetch the bundles and baskets. Naturally enough, when long distances have to be traversed by these women, they avail themselves of the cheap rides to be had from point to point by 'bus, rail, or tramcar, and, no doubt with a view to the safe custody of their burdens, they take them inside the vehicle, whatever it is. The atmosphere of our crowded public conveyances is always sufficiently offensive, without further contamination by the odours of foul linen, which in warm, wet, and muggy weather are very perceptible. I have on one or two occasions 'made myself so disagreeable' as to protest against the conveyance of bundles of dirty linen in omnibuses; and perhaps, if you will again ventilate the subject (for I believe you have done so on previous occasions), it will stimulate others to take exception to the practice. The London General Omnibus Company and the tramway companies should give strict orders to their servants against the practice, which I am sure you will condemn most strongly. To say nothing of the offensive smell of the linen cast by people in good health, who is to say what amount of infection is spread by the presence in the bundles of which I complain of bed or body linen which has been in contact with a fever or small-pox patient?"—*J. L. Dessurne in the "Lancet."*

Our Bookshelf

"Reading maketh a full man."—*Bacon.*

A BOOK ON POISONS.

What to do in Cases of Poisoning. By William Murrell, M.D., F.R.C.P. Fourth Edition. (London: H. K. Lewis. 1884.)

The fact that this handy little book has run into a fourth edition will surprise no one who is familiar with its contents. We may reiterate the opinion expressed in Health, when the third edition of Dr. Murrell's book was under review, namely, that of all handbooks for the medical practitioner, and for the family bookshelf which includes works on first aid and ambulance, this is perhaps the most generally useful. Cases of poisoning are of such frequent occurrence, and the remedies for many poisons are often so close at hand, if the public did but know how to apply them, that instruction in what to do in such cases is of the highest possible importance in the saving of human life. For instance, when an over-dose of alcohol has been swallowed, how useful to bear in mind that an emetic, hot strong coffee, and the cold douche are means which any one can apply. And when a poisonous dose of laudanum has been taken, the instructions given by Dr. Murrell, to rouse the patient, to avoid giving wine or brandy, to give an emetic, hot coffee, and a cold douche, are capable of application by the instructed layman. In the case of mishap with carbolic acid—a too common accident—the patient is to have Epsom salts and an emetic, while the white of egg may be given in large quantities, and castor-oil is also indicated for use. Most, if not all, of these remedies are easily procurable, and hence the value of Dr. Murrell's book is that, whilst meant primarily for the medical practitioner, it contains a vast fund of information such as the layman can appreciate and use.

The poisons and their antidotes are arranged in alphabetical order, and easy reference is thus facilitated. Dr. Murrell gives the composition, real or supposed, of many of the popular "patent medicines" of the day. He tells us that Morrison's Pills consist of aloes and colocynth, Anti-Fat of the sea-weed known as "bladder-wrack" (*Fucus vesiculosus*); Davis's Pain-Killer, of spirits of camphor, tincture of capsicum, tincture of guiacum, and tincture of myrrh and alcohol; Parr's Life Pills, of aloes, rhubarb, jalap, extract of gentian, oil of cloves, soft-soap, etc., Holloway's Pills, of aloes, jalap, ginger, and myrrh, made into a mass with mucilage; Mrs. Winslow's Soothing Syrup, of morphia, with essence of anise and syrup of balsam of tolu; Mother Siegel's Curative Syrup, of concentrated compound decoction of aloes, with borax, capsicum, gentian, oil of sassafras, oil of winter green, taraxacum, treacle, and rectified spirit; Lait de Concombres, or Milk of Cucumbers, of soap, glycerine, and cottonseed oil, made into an emulsion with rose water; and so on.

A useful table of emetics or "vomits" for poisoning cases is given. Two tablespoonfuls of common salt in half a pint of tepid water; a tablespoonful of mustard in half a pint of water; 30 grains sulphate of zinc in water; 30 grains powdered ipecacuanha in water, or two tablespoonfuls of the wine, are forms of emetic draughts easily administered. The action of an emetic is favoured, of course, by giving plenty of tepid water.

Pure Water is such a vital necessity that, without it, illness is certain. None are more prone to the ill effects when impure than the young. To ensure a pure supply send a post-card to the London and General Water Purifying Company, Limited, 157, Strand, London, W.C., who will return particulars post-free.—[Advt.]

LITERARY JOTTINGS.

Studies in Life. By H. Sinclair Paterson, M.D. *The Human Body and its Functions.* (Same author.) (London: Hodder & Stoughton. 1884.)—These two books, issued in neat paper covers, contain lectures by Dr. Paterson, which deal with many important and interesting topics drawn from the field of life-science. On the whole, the information is conveyed in a pleasing manner; but we must reiterate the objection we have already expressed regarding Dr. Paterson's writings, namely, that he indulges rather too freely in sermonising, and in drawing lessons and applications of a kind which, while they may suit some readers, are not evidently calculated for all, and are out of place in books devoted ostensibly to physiological teaching. People are apt to be suspicious, and naturally so, of books "written with a purpose," and of which the whole argument is intended less to serve the general cause of popular education, than to impress and support theological views of a special kind. Apart from these objections, we are bound to add, the books before us contain much information, popularly expressed; but the author is weakest where he attempts to dispose of "the other side" to his own, in questions relating to life and mind, matter and force.

Economy of Coal in House Fires, by T. Pridgin Teale, M.A., F.R.C.S. (London: J. & A. Churchill.)—Householders who have regard to the high price of coals, and to the saving of fuel, combined with the more efficient warming of their rooms, will do well to peruse Mr. Teale's book. His remedy for converting the open grate—whereof two-thirds of the heat passes up the chimney—into an efficient fire is very simple. He converts the common grate into a "slow combustion" one by using an "economiser," this is merely "a shield of sheet-iron which stands on the hearth, and rises as high as the lowest bar of the grate, against which it should fit accurately, so as to shut in the space or chamber under the fire." Even "bricks piled in front of the space under the grate, so as to close it," will serve the purpose of an "economiser." By this simple plan, Mr. Teale secures the thorough combustion of coal, economises fuel, and obtains an increased amount of heat. The cost of the "economiser," which any smith can fit to a grate, is only a few shillings at most. Those who care to invest half-a-crown in Mr. Teale's clearly-printed and well-illustrated book, will probably find a saving in their coal-bills, should they adopt his suggestions, which, we may add, are thoroughly scientific in their nature.

How to Prevent and Oppose the Cholera is the title of a useful leaflet, issued by the National Health Society of London. It is clearly written, printed in large type, and deserves to be widely circulated through the land at the present juncture.

Sanitary Arrangements in Dwelling Houses is a pamphlet by Mr. Mark H. Judge, published by the London Sanitary Assurance Association, 5, Argyll-place, W., and containing notes on the exhibits of the Health Exhibition worthy the attention of householders and others desirous of fitting their houses with safe and effective sanitary apparatus. We are glad to see that Mr. Judge denounces the mention of the old "Pan Closet" as an anomaly in a "Health" Exhibitor's list. While no common "Pan Closet" is exhibited, certain exhibitors say they are prepared to make and supply "this dangerous apparatus." As Mr. Judge remarks, it is curious to find "Pan Closets" advertised in lists which "must first receive the approval and permission of the Executive Council." The "Pan Closet" is a deadly

International Health Exhibition. — Eastern Gallery. — Daylight in Warehouses.—Chappuis' Reflectors. 69, Fleet-street. —[Advt.]

foe to health, and it is regrettable to find its name even mentioned in the lists of firms who profess to supply "sanitary" apparatus. Even the "improved" "Pan Closet" is by no means a satisfactory article. Mr. Judge has done good service in publishing these notes.

Our Domestic Poisons (W. Clowes & Son) is a pamphlet containing the substance of Mr. Carr's interesting lecture on the unseen foes to our health which lurk in our wall-papers, clothes, &c. The lecture deserves the perusal of all interested in household sanitation. Mr. Carr's remarks on testing for arsenic were published in HEALTH of last week.

Sanitary Appliances, Etc.

THE CHEMICAL PAPERS COMPANY'S PREPARATIONS.

THOSE who are troubled with moths cannot do better than place some of the Papier Préservateur, or Moth Destroyer, made by the above company (3, Lombard-court, London, E.C.) in the neighbourhood of the affected articles. Clothes rolled in this paper are not only protected from the attack of moths, but these insects and their eggs are killed by such an application, which, it need hardly be added, does not injure the most delicate fabric in any way. For ridding a house of ants this paper is also recommended, and in dog-kennels its use serves to rid these receptacles of the insect-life which is apt to be found therein. As a handy and convenient application to fabrics of all kinds, the paper above noted will be found useful. Anatomical or natural history specimens, plants, &c., rolled up in the paper, are duly protected from the moths and mites which curators of museums know only too well.

THE EL-TEB IVORY JELLY POWDER.

THE powder, prepared by the El-Teb Ivory Company (18, Bow-street, Sheffield), makes a strong, pure jelly, well-adapted for use by invalids and others. The jelly is pleasant to the taste, and, chemically, contains all the normal constituents of such substances in full development. Full instructions for making the jelly accompany each packet of the powder. We anticipate that this product will become a favourite one wherever used.

Our Letter : Box

"Conference [maketh] a ready man."—*Bacon.*

NOTICES TO CORRESPONDENTS.

All Communications for the Editorial Department (including specimens of Sanitary Appliances, &c.), to be addressed to "THE EDITOR OF HEALTH," *74-76, Great Queen-street, London, W.C. Those intended for the Publishing Office to be sent to* "THE PUBLISHER," *at the same address.*

Contributors are requested to send stamps for the return of the MSS. *in event of non-acceptance. Every care will be taken to ensure the safety of* MSS., *but the* EDITOR *and* PUBLISHERS *cannot hold themselves responsible for accidental loss.*

Correspondents are requested to write on one side of the paper only.

The EDITOR *disclaims responsibility for the opinions expressed by Correspondents.*

LETTERS TO THE EDITOR.

A SUGGESTION TO HATTERS.

SIR,—Seeing in yours of the 8th a reference as to hats, I think if some enterprising hatter would carry out the following idea he would have no reason to repent.

Every one knows how cool and refreshing it is to remove even a straw-hat from the head in hot weather, and I feel sure the relief might be permanent if an ordinary straw-hat had a wider brim, twice the height, and perforated with holes the whole way round about an inch from the top; this would allow a free current of air over the head, and room for a cabbage-leaf (a cool, comfortable thing), if desired. At present the top of an ordinary straw is too near the head for comfort and coolness, and the brim too narrow.—I am, sir, yours, &c., R. P.

REFORM IN MALE DRESS.

SIR,—The discussions of late on the reform in dress were provoked by its hygienic shortcomings, and consequently those who discussed the subject devised improvements mainly for the reformation of female dress. We men are not yet to benefit by a general open discussion on costume in which male dress, with all its æsthetic shortcomings, must rest for the present unreformed. Ladies have enough to do in their own dress problems to pay serious attention to those melancholy deficiencies in which we stand upright; and men themselves deplorably lacking interest on the subject, the general impression being that convenience is all that is really needed. This decision I shall strive to disprove by many objections to, and by the stagnant condition of, our coverings, trusting by degrees to disturb the binding overgrowths of custom. Our male mode has remained as it was fifty years back, with hardly a change. It is, in my opinion, a truly ungraceful, unpicturesque, and needlessly ugly covering, which we shall probably laugh at in days to come. We must remember the extreme conservatism of the English mind, and how slowly it admits the possibility of any change being an improvement. Therefore the more agitating and confronting on the subject the better. With my own very serious objections to the dress as it now is, I shall try to show, first, that it is in the pattern or cut that it is so offensive; and, secondly, in the material and colour—unmoved has Fashion stood, regarding us, for half a century. It is in tentative efforts, in public and in private gatherings for the purpose of gaining a new dress, that we must strive for aid. We ought stoutly to refuse to be bound down to ugly rules which will straight-waiscoat all earnest effort for more varieties of our dress, making it only healthy and not beautiful, for we wish to combine both these much-desired changes. It has been lately said or written "that the public will not follow the lead of those who, whilst reforming the unhealthy dresses of to-day, supply their place by dresses less attractive or positively ugly." I sincerely hope not. It is insufficient that we be conveniently and healthily clad. In female costume Fashion's contortions abound, but being at a loss occasionally, she makes, as quite by a fluke, a suggestive if not very pretty costume, only too soon to be thrust on one side—for it will be remembered the female mind has always a dress-conceiving faculty for the future. It looks ever for something fresh, something new. It cannot retain for its own sake a beautiful dress; but in male dress, on the contrary, I contend, there has been no movement. We have been bred and brought up in black cloth coat, hat, and trousers—a deadlock—for half a century. Unlike female fashions, too, we have no choice. It is possible that, as ladies get more artistically wise, they will stop at one of the most happy turns in fashion's wheel some time hence, and from this point lead off to better customs, such as are to be found in the long forgotten wardrobes of the past, replete with so many fine old designs, with their varieties for different seasons. Many of these obsolete dresses so *rational*, sweet, and adaptable to this climate and modern travelling requirements, are lost sight of in the fever for change for the sake of change. They will re-appear, and by this time men may begin to fear utter isolation. The offending coat, trousers, hat, and shirt of the present, that have clung like the cloak of Nessus for so long, dulling the senses of the wearer, will, in their turn, be laid aside. This present garb must be pushed aside by a determined resistance of the meretricious concoctions of the modern costumier, who, by mysterious workings, sets these shows a-going with their elaborately ugly festoonings and crumplings. The poor public is not to blame; it will be glad of a change, if we can once offer it. At present, we are too prescribed in our reforms, needing more close consideration of the dresses that clothed past millions in this land—dresses full of impressiveness and beauty. The reform will begin with the revival of their use, and the redressing of a people whose estimation of dress we wish to increase and make greater in proportion to the beauty contained in it. This assistance must be chartered from the artistic societies and their friends, as well as from those who, corn-cramped and corset-brushed, first raised the rebellion against modern dress on the more capital charge of its being positively harmful to the health of our men and women. In this respect there has been good assistance from the medical profession, and a strong force in the Rational Dress Society. They have shown how much in our dress abuses health, nay, causes death. It now must be clearly shown how much it disfigures us. But with your permission, Mr. Editor, I will return to the subject "in our next.—I am, yours, &c., REFORMER.

QUERIES AND ANSWERS.

We would direct the attention of our correspondents to the fact that, owing to the necessity for sending HEALTH to press early in the week, answers to queries cannot, as a rule, appear in the succeeding number of the journal. Every effort is made to secure punctuality in the replies, but we must ask the occasional indulgence of our readers, owing to the large amount of correspondence, which requires assortment and reply.

We must also request correspondents who write enclosing stamps for copies of HEALTH, to address their inquiries to the Publisher, *and not to the Editor.*

We beg to announce to our correspondents that, save in exceptional cases, or where addresses of medical men, &c., are desired, we cannot reply to inquiries by letter.]

Correspondents will please note that Queries addressed on Postcards are consigned to our waste-paper basket. If information is worth having, it is at least worth a letter.

[A number of replies are unavoidably held over from pressure on our space.]

GENERAL.

BETA.—Not important, as far as we know.

J. CALDER.—See reply in No. 69 HEALTH.

AUSTIN.—1. Air bracing, decidedly. 2. Not so bracing as 1.

TEESDALE.—There is no such thing as "the spontaneous generation of maggots." Such an idea was exploded as long ago as the time of Francesco Redi. See article on "The Genesis of Life," in Dr. Wilson's "Leisure Time Studies," 3rd edition (Chatto & Windus, London).

J. BRINKWORTH.—No connection with this journal.

A. Z.—Declined with thanks.

ROBERT GRAY.—Send us the MSS. by all means, and we will decide after reading it.

ELLEN.—The powder you send is quite pure and harmless, and may safely be used. 2. Try Fuller's Earth as an application to the excoriated surfaces.

A. L. T.—1. Better avoid the practice altogether. 2. There is no comparison between the two forms of exercise. 3. About twenty or thirty.

TYNE.—See reply to "Robert Gray," above.

J. COLESHILL.—Not at present.

DAVID W. HUGHES.—We cannot guarantee that the system will suit you; no system can suit every one. Our testimonial is in itself explicit, and we cannot afford time to reply to the list of queries you send.

ALEXANDER BAYNE.—Dr. Wilson's "Manual of Health" will be shortly published by Messrs. Longmans & Co.

TRICYCLE REPLIES.—ALLAN T. See our remarks on the performance of a Meteor Sociable, in No. 71 HEALTH.—BESSIE REID. Send us your address, please, for special reply.—A. M. 1. About thirty miles, we believe. 2. Easily accomplished.—ELLA. You must not tricycle "all day," as you put it. Your own common sense should show you that you have been overdoing the exercise greatly. Simply rest, and be more moderate in tricycling.—J. BURT. There is always danger of the vein bursting under such circumstances. Consult your surgeon before further exercise is taken.—CROW. "Aortic Disease" is certainly a serious condition requiring medical attention, and no tricycling or other exercise should be taken save under medical advice. Tricycling is unsuitable.—B. G. Write to the makers; there is a special make of machine, we believe.

ANNIE.—Cut flowers will smell offensively in a bedroom, probably because they begin to decompose, while the water becomes putrid; no other cause for the odour.

J. N.—You will find Miss Chreiman's address in her "Letter to the Editor," in HEALTH No. 70. Apply to her for information. See also paragraph advertisement in HEALTH, No. 71, page 292, of Mrs. Williams's classes.

SANITARY.

A.G.S.—See "Notes by the Way" regarding flies, in present number of HEALTH.

NINA.—There is probably siphonage of the trap, resulting from inequality of air pressure. The trap in this sense is therefore faulty, and should be removed. Try Pott's "Edinburgh Trap," advertised in HEALTH.

G.B.—See our advertising columns.

ANSTRUTHER.—The odour, as you say, is "abominable," but it is probably not dangerous to health. No odour of the kind can be described as utterly harmless—that is, it is not advisable (far less should it be necessary) to breathe it constantly. We advise you to soak your own surroundings thoroughly with carbolic acid, Condy, or "Sanitas."

INGLEFIELD.—Write to the patentees direct. They will reply to you.

A. T.—A very pronounced abuse, which your Medical Officer of Health should see to at once. There is no question or doubt of its illegality.

MCDONALD ASHTON.—Have you applied to your landlord in the first instance? If not, do so. If he fails to comply, write to the medical officer of health (don't call), stating your grievance. If he neglects to comply with your request, address a note to the Town Clerk. Failing attention being paid then, place the matter in your solicitor's hands. The Medical Officer of Health and Sanitary Inspector are bound to attend to such matters. They are paid salaries for such functions.

MEDICAL.

J. H. J.—Don't be alarmed in any way. You are in no sense ill or ailing; all you describe is to be taken simply as evidence of complete health. There is no necessity in your case for any treatment whatever. Simply avoid stimulating foods and alcohol, and attend to the general conditions of health. Only quacks will persuade you differently; and we imagine you have too much good sense to pay any heed to their ministrations.

RICHMOND HILL.—1. An evidence simply of over-work or over-fatigue—of no importance otherwise. Take a teaspoonful of Fellows' Syrup of the Hypophosphites, thrice daily, an hour before meals, in a wine-glass of water, when you notice the symptoms you name. 2. For the other ailment use pure vaseline as an application: if that is not sufficient use the carbolated vaseline; and if not bettered write again. Avoid all highly seasoned foods.

M. F. C.—Use a lotion consisting of bicarbonate of soda one drachm, glycerine an ounce and a half, and apply to the parts affected. See that your food is non-stimulant, and take a little Lamplough's Pyretic Saline in the mornings occasionally. If not bettered, write again.

HUBERT.—1. Try a little Lamplough's Pyretic Saline, as ordered to "M. F. C." above. If not bettered, write again. See that your food is of a non-stimulating character, and eat fruits and vegetables. 2. There is no purer soap than that named. It is absolutely free from any extraneous ingredients whatever. You will do wrong if you substitute any other for it. 3. Because it is free from minerals, which often irritate the skin, and because it makes a free lather with water. 4. See advertisements in any of the bicycling papers. The "Otto" school is in Newgate-street. 5. Unadvisable to use as a "blood-purifier." Lamplough's Saline is preferable in every way.

L. WAKEFIELD.—You must make a thorough change in your food; and if your occupation is sedentary you must take more open-air exercise. Take Lamplough's Pyretic Saline occasionally in the morning, and make fruits and vegetables part of your dietary. Avoid suppers, and see that your bedroom is well ventilated. Try cold sponging in the mornings. Rest after food is also necessary.

IOLANTHE.—Yes; your hours are much too long. You suffer from lack of out-door exercise and indigestion. You have also too lengthy intervals between your meals. These points must be corrected if you wish to regain health. Take more open-air exercise; food to be light; rest after meals, and take a little Morson's Pepsine daily with your food; particularly avoid constipation, and try cold sponging in the mornings. Your chief point is to avoid long hours and strain.

EPICIER.—The electrical bands will do you good; but the advice given to "Iolanthe" above also applies to your case. You are simply violating health-laws as you now exist with such confinement to business, and you must obtain more exercise in the open air. Glad to be of further service, if necessary.

DEJECTED.—Yours is a very common case, but one quite curable by attention to ordinary health-rules. Firstly, avoid stimulants, and take perfect rest for a period from exercise of all kinds, including that you name. We should say attempt no exercise for at least six weeks or two months. Meanwhile, food to be light, but non-stimulating. Try cold sponging each morning; moderate out-door exercise (you would find gentle tricycling the very thing for your case); and the tonic recommended to "Richmond Hill" above should be taken for a time. If you attend to these measures carefully and perseveringly, we shall expect to hear from you in a few weeks' time that your troubles have disappeared. All alcohol is bad in your case, if we except a little light wine or beer at dinner alone.

Sexton.—Try twenty drops of Collis Browne's "Chlorodyne" in water, as a remedy, and avoid all fruits for a time.

Charles.—Take the tonic recommended to "Richmond Hill" above for, say, a week; and let us hear how you are thereafter. You only require a nerve-tonic and change of air.

B. J. P.—Only a slight strain. Wear an elastic bandage (Dr. Martin's) for a time.

Parcels Post.—1. Apt to cause spinal curvature, we should say. 2. No. 3. Doubtful, at the best.

Gibbons.—We have not heard of the invention you name, but from the circular enclosed we entertain no doubt of its quack nature. Some of the statements in the circular are simply outrageous. Have nothing to say in the affair.

Axon.—See advice given to "Charles" above.

B. T. S.—The child should be seen by an experienced eye-surgeon. We shall be glad to send you address of such on receipt of stamped addressed envelope. We do not mention medical men by name in Health, but we are always glad to recommend reliable physicians and surgeons when requested.

Tom G.—If you are really serious in expecting us to reply to the question you send, you must be a greater fool than knave. If you are not serious in your questioning, you are more knave than fool. Now, take your choice of these alternatives. We are always desirous of helping those who need and ask our aid; but we have nothing but contempt for persons who, as in your case, would seek to abuse a privilege.

Alex. Thom.—A quack pure and simple. Have nothing whatever to do with him.

Vida.—We should recommend you to try Hazeline for the affection. Make a lotion by adding one part Hazeline to three parts water, and apply constantly to the part.

Jaborandi.—Try the first-named—it is preferable in all ways.

Cecil.—There is, we fear, no method of cure such as you name. The only reliable method is by a surgical operation.

E. P. P.—Take a pill containing two grains sulphate of quinine one hour before dinner daily, for some time.

Gasta.—There is no specific cure for trichinosis, which depends on the young brood of worms migrating from the stomach to the muscles. Once in the muscles, all danger is over. The worms, which are very minute, disappear in time by a process of degeneration.

Billy.—1. Rub the part with a little chloroform-liniment cautiously applied. 2. In about ten days usually.

G. O.—Use weak injections of Condy's Fluid and water twice or thrice daily; avoid stimulants; and take the tonic recommended to "Richmond Hill" in present number of Health.

S. S.—We should say Margate as the more bracing resort. Yarmouth or other east coast places might suit as well.

Bingham.—1. Arises from excessive pressure. 2. Caused by some obstruction to the return of blood in the veins. Sleep (and sit) with the feet elevated.

J. A.—See reply to "Alex. Thom" above.

Deep.—There is no such preparation known to us, and certainly none of that name is included in the British Pharmacopæia. Let us know where you met with the reference, and we will try to aid you.

Ajax.—No fear of fever in your case, for you are long past the period when any such ailment should have appeared after infection.

T. S. X.—You must consult a physician. There are symptons in your case requiring accurate examination of your chest. Seek advice at once.

Aster.—See advice to "Charles" above.

Scipio.—A band of quacks. Have nothing to do with them. See and follow advice to "Copia" in Health No. 71. The means of cure are there stated distinctly; but, from your letter, we judge that you scarcely need any measures beyond attention to ordinary health-laws. State fully (in event of your writing again) what you specifically complain of.

P. T.—1. No effect, provided they are well covered by your clothes. There is no more danger in wearing them during a thunderstorm than in riding in a cab, or sleeping in an iron bed; and the risks in either case are very small. 2. Look to your digestion. Rest after your meals, and avoid all stimulating and indigestible foods.

One in a Fix.—Your fears will turn out to be groundless—such is the common result of medical experience in cases like yours. You make far too much of your past ailments. There is no reason why, with attention to diet and to moderation in all things, you should not take the step you propose. Give up smoking (if a smoker), or indulge in the habit very sparingly, and continue the tonic for a time. We do not think the ointment would be of any service. Try also cold sponging each morning. Glad to advise again, if necessary.

H. F. P. L.—1. No; there is no acid in the prescription to which you refer. Try Rowland's Macassar Oil (red) for darkening the hair. 2. The yellow deposit you got is iodide of lead. 3. It will not stain the skin unless used in a strong solution. 4. Quillai bark is a capital substance (used with water to make a lather) for washing the head. You should not wash the hair too often; once, or at most twice, a week is sufficient in health.

Perplexed.—Safer to consult a reliable surgeon, whose address we can send you, if desired, on receipt of stamped addressed envelope. We have never heard of the person mentioned, but his assertion that the ailment you name can be cured by drugs is, to say the least of it, a very shady statement. Better far to trust your health to a reliable practitioner.

S. C. W. (Cardiff).—You should not be morbid or despairing. The probability is that you only require plain hygienic treatment to retore you to full vigour. See and follow advice to "Copia" in Health No. 71, and let us hear how you are after a fair trial of these recommendations.

Theofric.—See advice to "G. C. W." above. Don't be morbid. There is no reason for depression. Let us hear how you are after a fair trial of the advice given to "Copia" in No. 71 Health.

Sea-bather.—No necessity to omit the bathing before the time you name. Avoid bathing on the approach of symptoms, and discontinue bathing till these have disappeared entirely.

B. H. R.—You are quite mistaken as regards the secretion you name. It is not what you imagine it to be. Use cold sponging each morning, and take 15 drops *Fer Bravais* thrice daily in water between meals. There is no need for you to be alarmed. Attend to state of bowels, of course, and avoid constipation.

K. G. F. S. M.—We are of opinion that in such a case as that you describe, it would be a sheer waste of money, time, and hope to attempt any electrical treatment. Above all, do not waste money on the system you saw advertised. From what we have seen of it, we have no faith whatever in it. If you wish it, we can send you address (on receipt of stamped addressed envelope) of a reliable London physician; but, of course, you know cases of the kind you describe are difficult to treat, and frequently impossible of absolute cure.

Best.—There is no need for alarm. Your case is that of hundreds. Read and follow advice to "Copia" in Health No. 71.

J. Cattell.—The dye contains lead. It is therefore unsafe to use.

B. Elder.—A quack pure and simple. Have nothing to do with him or his pretented "cures."

J. A. N.—Over-exertion accounts entirely for your state. You can't expect to work day and night continually without feeling ill. You must go away for a complete rest and holiday change. Try the East Coast.

Synosis.—There is no suspicion of any poisoning in your case, except, indeed, the water came from a leaden cistern, or absorbed lead from new pipes.

A. K. Q.—Try Hazeline as a lotion—one part to three parts water.

Cecis.—A very foolish freak indeed; if you suffer therefrom you have yourself to blame. Use plain Vaseline as an application, and bathe frequently with cold water. Your common sense should have prevented such folly.

Jack.—Try gargling with Condy's Fluid and water. Probably a little simple ulceration, which will soon disappear.

Sentry.—A proper truss is required; but in any case you will do well to give up all active exercise until your surgeon pronounces you cured.

Gib.—Absolute rest is necessary, and in many cases this alone will cure you. As you have the chance of pure air and a holiday, by all means seize that chance, and make the most of it.

Light.—Don't be alarmed. Your case is both a common and eminently curable one. You must not allow your mind to dwell on your troubles. Simply read and follow advice given to "Copia" in Health No. 71. The pamphlet you send is the production of a firm of quacks. Have no fear about your future.

Unrest.—See and follow advice to "Light" above. Be cheerful. You will get perfectly well by attention to the rules prescribed.

Missy G.—1. Use Rowland's Macassar Oil (red), and give it a fair trial. If not bettered, let us hear from you again. 2. For bunions, see advice given to "Kate" in Health No. 70.

Moorland Willie.—Write to Messrs. Pulvermacher (see their advertisement in Health), and they will send you such a belt as you require. It is likely to do you good. Continue your cold sponging, and take the tonic at intervals only. Don't be alarmed; there is no occasion for fear either as to present or future. Let your food be light, attend to the condition of bowels especially, and eat fruit as part of your dietary. As regards the sleeplessness, while you must avoid suppers, a biscuit and a glass of milk taken half an hour before going to bed may suit you. Above all, see to the ventilation of your bedroom.

[*Continued on page* 320.

"ELECTRICITY IS LIFE."

REGISTERED TRADE MARK.

PULVERMACHER'S ELECTRIC BELT AND BANDS.

PULVERMACHER'S ELECTRIC BAND, £1.
PULVERMACHER'S ELECTRIC BELT, £2.
PULVERMACHER'S PADDED BELT, £3.
PULVERMACHER'S GALVANIC APPLIANCES

For the Cure of Nervous Diseases, first introduced into England in 1848, have now stood the test for thirty-six years, and have received testimonials from three of her Majesty's physicians, H.R.H. the Prince of Wales's physician, H.I.M. the Emperor of Austria's physician, and the leading physicians of nine London hospitals.

IN ADDITION to the above TESTIMONIALS, Mr. Pulvermacher has had the distinguished honour of receiving a VOTE of THANKS from the Académie de Médecine of Paris, an honour conferred upon no other Electric Appliance in the world.

CHRONIC RHEUMATISM.

"Royal Infirmary, Liverpool, August 15, 1884.

"Dear Sir.—The patient for whom I purchased your Electric Belt has been suffering from Chronic Rheumatism for upwards of fourteen years, during which time medicines of all kinds have been used. Your Belt has done great good and afforded enormous relief. —I remain, yours very truly,

"J. L. Pulvermacher, Esq." "JAMES J. BYRNE.

GALVANISM v. CONSTIPATION and PILES.

"Henley-in-Arden, Birmingham, Aug. 12, 1884.

"Dear Sir.—I have worn your Electric Belt for Piles and Indigestion. The piles I have been subject to for about eight years, and I am now happy to say the Belt has nearly cured me, although I have only worn it for about six weeks; it has also cured me of Constipation from which I suffered very much.—I am, yours sincerely, "ALFRED GROOM.

"Mr. J. L. Pulvermacher."

GALVANISM v. ACUTE RHEUMATISM.

"Gelston Castle, Castle Douglas, Scotland, July 17, 1884.

"Dear Sir,—I think it only right to inform you that your treatment has completely cured me of rheumatism. Four years ago I was suffering martyrdom, and after trying various remedies I was induced to try your Galvanic Belt, and I am pleased to say that after two months' wear I was perfectly free from pain, and have never suffered since.—I am, yours faithfully,

"(Capt.) C. MAITLAND KIRWAN.

"Mr. J. L. Pulvermacher."

GALVANISM v. ASTHMA and BRONCHITIS.

"4, Martin-st., Stratford, E, July 18, 1884.

"Dear Sir,—I am pleased to testify to the benefit I have received from wearing one of your Electric Belts. About six years ago I was confined to my room for three months with chronic bronchitis and asthma. I wrote to you for one of your Electric Belts, and I can truthfully say I have not been laid up since.—I beg to remain, yours gratefully, "WILLIAM SIMMONS.

"Mr. Pulvermacher."

GALVANISM v. NERVOUS DEBILITY and WANT OF CIRCULATION.

"Banagher Rectory, Derrychrier, Londonderry, July 10, 1884.

"Dear Sir,—I write to say that I found great benefit from the use of your Electric Belt. I regained strength after some weeks wearing it, and have now ceased using the Belt, as the debility and benumbed feeling in hands and feet have left me.—I am, yours truly, "J. B. SCOTT.

"Mr. J. L. Pulvermacher."

GALVANISM v. NERVOUS EXHAUSTION

Testimonial from India, received July 29, 1884.

"Agra, India, July 6, 1884.

"Dear Sir,—Your Galvanic Bands have worked wonders for me, and of their great efficacy no doubt can exist. I am very grateful to you, and am yours, very truly,

(Major) "F. W. CHATTERTON, Magistrate.

"Mr. J. L. Pulvermacher."

DR. ANDREW WILSON, writing in "Health" of March 28, 1884, in answer to an inquirer, says:—

"Pulvermacher's Belts are thoroughly genuine. They produce powerful electric currents, and are in every sense effective."

DR. C. HANDFIELD JONES, F.R.C.P., F.R.S., Physician to St. Mary's Hospital, says:—

"I am very disposed to think that Mr. Pulvermacher's Apparatus may prove to be of great importance and value to medical practitioners, especially in its latest improved form. I am satisfied that he is an honest and earnest labourer in the field of science, and I think he deserves to meet with every encouragement from the profession and scientific men.

MR. PULVERMACHER, as a further proof of the genuine curative effects of his appliances, will be happy to forward, post free to any part of the United Kingdom, his Electric Belt, price £2, on receipt of £1, the balance to be paid when satisfied with results.

PULVERMACHER'S ELECTRIC BELT is the only Electric Belt recommended by Her Majesty's Physicians and leading Hospital Doctors, and its efficacy has been VOUCHED FOR BY THE PRINCIPAL MEDICAL AUTHORITIES in England and abroad, in the scientific Press, by autographic certificates, and by a host of Testimonials, a few of which are reproduced in a Pamphlet, "Galvanism Nature's Chief Restorer of Impaired Vital Energy," post free on application to

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A MACHINE to supersede the Pen for Manuscript Writing, Correspondence, &c., having twice the speed of the Pen; is always ready for use, simple in construction, not liable to get out of order, easily understood, and any one who can spell can write with it. "PORTABLE."

"I have worked the machine for eight consecutive hours without more than 10 minutes' interruption, and at the end of that time my hands were not conscious of the least fatigue."—R. BRUDENELL CARTER, F.R.C.S., &c.

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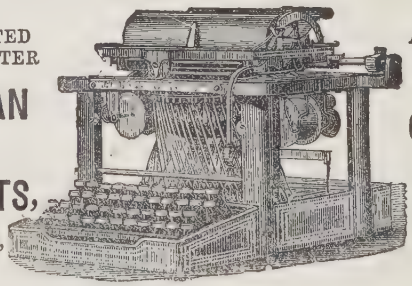

CAPITAL AND SMALL LETTERS.

BEEMAN & ROBERTS,

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YOU SHOULD

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The ONLY INDEPENDENT Monthly Treating of EVERY SPORT extant.

Comments and Trade Articles by all the leading authorities, Amateur and Professional.

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OF ALL NEWSAGENTS THROUGHOUT THE WORLD

PUBLISHING OFFICES: 21, LEADENHALL STREET, LONDON.

Patternmaker.—What you complain of is a sign of health in persons who are in your condition—namely, well and hearty. Only quacks will persuade you differently. Eat fruits and vegetables as part of your diet, as a cure for constipation. For a few mornings take a little of Lamplough's Pyretic Saline on rising; but judicious diet should afterwards cure you. If not bettered, write again.

Mary.—Thanks for your kind letter. In your case we should advise you to continue the *Fer Bravais* for some time, as you have found it do good. For the rest, we should advise you also to continue fruits and vegetables as a normal part of your dietary; while with advantage, and by way of correcting the habit you allude to, you might try the effect of taking a little Lamplough's Pyretic Saline in the morning, in a tumblerful of cold water on rising. We suspect the "noises" you complain of are the result of the worries you have had. Try the effect, when you are much troubled with them, of taking fifteen grains bromide of potass in a wineglass of water. A suitable belt, properly adjusted, and to be obtained from Messrs. Khrone & Sesemann (see advt. in Health), of Duke-street, Manchester-square, London, W., would relieve you, and tend to improve the figure. The makers just named would send instructions for self-measurement. Glad to be of service at any future time.

Tradesman.—There is no very serious effect on the health of your affection, except through possible pain and annoyance. The operation is a very simple one. See a surgeon, and relieve your mind by such a course. No drugs are of any avail.

R. Richardson.—Try the effect of taking small doses of Lamplough's Pyretic Saline in the mornings for a time. If, as we believe, the spots arise from slight blood-trouble, this medicine will better them. If not improved, write again.

Oberon.—Don't take so much tea and coffee; and substitute Feltoe's Spécialité Lime Juice, or Montserrat Lime Fruit Juice, and water for other drinks. Wash the body regularly with cold water and Tidman's Sea Salt each morning, and use brisk friction thereafter. If not bettered, write again. There is nothing seriously wrong. You only require attention to skin and to diet, as above indicated. Avoid fatty substances as much as possible.

B. C. N.—1. Take for a time the tonic recommended to "Richmond Hill" in present number of Health. 2. Bournemouth would suit.

C. Harvey.—See advice to "Oberon" above, as regards the use of Lime Juice and salt-water baths. Apply pure Vaseline to the spots which are irritated as you describe.

Hope.—In such a case as yours, the only treatment worth advising is that which can only be carried out by a professional aurist. (Beware of quacks in this special department.) Examination of the ear is absolutely required. If you desire it (under the circumstances you name) we can put you in the way of obtaining an opinion. Try the effects of taking 15 drops of *Fer Bravais* thrice daily in water, meanwhile.

H. A. J.—We prefer the north side of London — Highgate, Hampstead, Hornsey, Barnet, and so forth. Fulham might not be bracing enough.

W. Ainsworth.—You are very foolish and over-excited. What you complain of is a sign of health, and only quacks (whose literature you have evidently been perusing) will tell you otherwise. The "cruel complaint" you speak of, is no ailment at all. You make it so through a too vivid imagination. Be cheerful and happy. Use cold sponging each morning; let your bedroom be cool and airy; don't take suppers or fluids late at night, and don't sleep on your back.

Thos. Mee (Manchester).—The use of a well-fitting elastic bandage (*e.g.*, Dr. Martin's is the best, to be had of Khrone & Sesemann—see advertisement in Health) is the only sure method of cure. You must avoid standing much. Sit and sleep with your feet elevated, or have the foot of the bed elevated so as to favour the return of the blood in the veins. Avoid constipation above all things, by eating fruits, &c., as part of your dietary.

Singleton.—Try the first-named. It is superior to all others.

B. Askew.—Give up tea and coffee, and your heartburn will likely disappear. A pill containing two grains sulphate of quinine should be taken an hour before dinner.

Nestor.—You evidently suffer from a weak mucous membrane of the nasal passages; and your theory of parasites is quite incorrect. What you send us merely consists of coagulated blood. We should advise you to employ a nasal douche, and to have the nostrils painted with glycerine of tannin. *Fer Bravais* (fifteen drops, thrice daily in water, after meals) should also be taken.

TRADE MARK "HEALTH-BELT." REGISTERED.

HARNESS' ELECTRIC BATTERY BELT.

The most recent invention in Medical Electricity, and universally acknowledged to be as vastly superior to all so-called Electric and Magnetic Contrivances as is the Electric Light to a Rushlight.

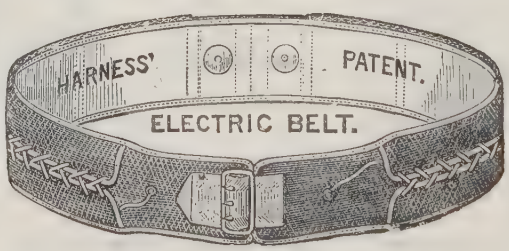
EXPERTO CREDE.] HARNESS' BATTERY BELT. [*EXPERTO CREDE.*

RHEUMATISM.

"5, Maitland-terrace, Bruce-grove, Tottenham, N., May 12, 1884.

"Dear Sirs,—In answer to your letter, I am sorry I have neglected writing to you so long, but I am pleased to tell you the result of the Belt is very satisfactory, as it has quite cured me of Rheumatism. I have not lost any time since I had the Belt. I still continue using it, as I find great benefit from it, and I have recommended it to several different people that are suffering from the same complaint; in fact, two different people have wanted me to lend them my Belt, as they see it has done me so much good; but I tell them to go to you and buy one, as I do not mean to part with mine. Wishing you the greatest success, I remain, yours truly, "Jas. Gibbons.

"To the Medical Battery Company."



NERVOUS DEBILITY.

"22, Bembridge-street, Mill-street, Liverpool.

August 1, 1884.

"Dear Sir,—It being now near the end of the month, I wish to report the progress I have made towards recovery from my disease by the use of your Battery Belt. There is not the slightest doubt but that the Belt has done me a great deal of good. I intend to recommend your Belt to my friends, who I know are thinking of getting one, as your Belts are genuine, not the useless trash sold by a number of firms I know.

"I remain, yours truly,

"Joseph Collingwood."

THE MEDICAL BATTERY CO., 205, REGENT ST., LONDON, W.

HARNESS' BATTERY BELT stands pre-eminent for Curative efficacy in cases of

Rheumatism,	Kidney Complaints,	Constipation,
Lumbago,	Epilepsy,	Female Complaints,
Sciatica,	Paralysis,	General & Local Debility
Gout,	Indigestion,	Functional Disorders, &c.

HARNESS' BATTERY BELT is the perfection of an Electric Belt, as regards efficiency, simplicity, cheapness, and comfort in application.

HARNESS' BATTERY BELT requires no troublesome wetting with acids, and, therefore, produces no sores on the body.

THE CONSULTING ELECTRICIAN, who has had 14 years' experience in the use of Curative Electricity and its special application to various kinds of diseases, is in attendance daily, from ten a.m. to six p.m. Consultation and advice free, PERSONALLY, or BY LETTER. Residents at a distance should send for a private advice form, post-free.

PATIENTS are invited to call at the Consulting-rooms, 205, REGENT-ST., LONDON, W. (two doors from Conduit-street), and gratuitously test for themselves the effects of the electric currents produced by these Belts.

HARNESS' BATTERY BELT forwarded post-free on receipt of P.O.O. for 21s., payable to G. A. NELSON, 205, Regent-street, London, W. SEND SIZE ROUND THE WAIST.

For full particulars send for pamphlet, entitled "Galvanic Electricity, Nature's Remedy for Impaired Vital Energy," post-free from

THE MEDICAL BATTERY COMPANY, 205, REGENT STREET, LONDON, W. (two doors from Conduit-street).

HEALTH

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, AUG.* 29, 1884.

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Notes by the Way

"Health is the foundation of all our physical happiness."—*Herder.*

THE extreme heat we have of late experienced has not been without its due effect on the public health. There have been casualties from sunstroke, and, as usual, the death-rate has been increased from the unusual prevalence of that "summer diarrhœa" which tells so hardly upon children of tender years, and which, moreover, seems to form a kind of border-territory whence more serious ailments in adults may spring. The Medical Officer of Bolton, Dr. Sergeant, for example, reports that during the past four weeks there had occurred fifty-five deaths from diarrhœa in his district. Several of these had been returned as due to "English cholera." The deaths included those of thirty-eight infants under twelve months old, and of nine children between one and five years of age. The same tale of weather-influence on health is repeated in the reports which reach us from other districts. Thus in the twenty-eight large English towns dealt with in the weekly returns of the Registrar-General, the fatal cases of diarrhœa, which had declined from 881 to 585 in the three previous weeks, rose to 789 for the week ending Saturday, Aug. 16, through the great heat. In Scotland there were 51 fatal cases of diarrhœa during the same period, this number equalling those of the preceding week. In Ireland, 22 deaths from this cause were registered, 15 being those of children under a year old. The lesson so often taught by sanitarians again comes to the front—namely, that special care should be taken in the matter of all digestive disorders occurring in the summer months, not only among very young children, but among adults as well. The influence of the weather on health is, of course, a highly fertile topic, to the proper understanding of which the researches of Dr. Arthur Mitchell and Mr. Buchan have notably contributed. We intend to refer to this subject more particularly in a future number of HEALTH.

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THE question of retiring-rooms in towns and cities has been mooted and discussed for some time past, but with scant success, as far as practical result is concerned. After all, there is really no topic of greater social importance than this. That the preservation of health would be largely aided by the establishment of lavatory-accommodation for both sexes, admits of no doubt, and it is to be earnestly hoped that municipalities will take the matter up, and provide retiring-rooms, for ladies, especially, in the districts under their supervision. The subject is well worthy the attention of private enterprise. There can be no question that such institutions, well and suitably placed in cities, would pay well—indeed, the experience of retiring-room speculations where they have been carried out, clearly shows that the efficient supply of a great social want cannot fail to prove a profitable investment. In London, especially, the want of the accommodation in question is severely felt; and the metropolis does not by any means stand alone in this respect. We trust to hear at no distant date that this defect in our social arrangements has been duly made good.

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IT is interesting to note, in relation to the papers by Mr. Snell, at present being published in HEALTH, on "Eyesight in Relation to Education," that the Minister of Instruction at Berlin has determined to investigate the causes of the short-sightedness which prevails in the schools of Germany. The experiments are to extend over a certain period of time, cards and lists, giving the results of the periodical examinations of the pupil's sight, are to be duly prepared and registered, and finally improvements, which the information thus collected may suggest, are to be carried out in the benches, lighting, books, maps, and other items of school-life. That this investigation is a step in the right direction goes without saying. It is to be hoped our own educational authorities will not lag behind the German department in the all-important matter of securing healthy eyesight in the young by attention to the ordinary details of the school and its surroundings.

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WHEN people are apt to grumble at the frequency with which sanitary reformers repeat their cautions and advices in the matter of disease-prevention, they require to be reminded that "wisdom lingers" long in the case of health-knowledge. Day by day we may find the simplest health-precautions neglected, the most common means of disease-prevention overlooked, or spurned altogether; and the presence and progress of serious disease actually fostered and encouraged. As an illustration of the need which exists for the diffusion of health-knowledge among the people, and of the immense amount of ignorance which yet remains to be corrected, we may take the following from the report of the Withington Medical Officer of Health:—"Dr. Railton," says the report, "narrates the following flagrant instance of the carelessness of parents whose children were suffering from scarlet-fever. On visiting the house of the family in question, Dr. Railton found a boy, eight years old, whose skin was undergoing the process of peeling, just returning from playing in the street. In the only living-room of the house were three other children, two of whom were unmistakably suffering from the disease, and the third was sickening with it. Dr. Railton's offer to remove the children to the hospital being refused, he warned the parents against allowing any further exposure of their children in public. Yet, about two or three weeks later, another son of the same family was found in the street with his skin peeling. This case was very properly taken before the magistrate, who inflicted a fine."

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IT is not easy even for rational persons to speak calmly of such violations of common-sense rules of life—not to say of ordinary morality—as are exemplified in the above

statement. The case just quoted is, however, anything but rare. Every medical man knows only too well how careless people may be, and are, of the interests of their neighbours in this matter of disease-infection. Not only is the carelessness in question witnessed amongst the poor, but the well-to-do classes often evince a singular apathy in this highly responsible duty of seeing that by no carelessness on their part is disease communicated to others. In the circumstances, there seems to be nothing left for sanitarians save to continue to "hammer, hammer" the hard, plain truths of health-science into the national mind. It is only when people learn how much can be done to save pain, misery, and even death itself by the exercise of common knowledge, that they will bestir themselves to work out their own physical salvation from the diseases that everywhere beset them.

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The question, "Should lodging-houses be registered?" has again been revived, when the resorts of our own land are crowded to excess by the visitors whom the cholera-scare has kept at home during the summer holidays. There can be no hesitation in answering the question in the affirmative. We should like to add that the laws against overcrowding, which are enforced in the case of the slums of our cities, might, with great advantage, be made operative at the present season in more than one crowded resort. The time will come when hotel-keepers and lodging-house proprietors will voluntarily place themselves on the list of those who have the sanitary arrangements of their houses duly inspected by Sanitary Associations from time to time. But public opinion must constitute the initial factor in this sanitary advance. We are far too willing, as a rule, to pack ourselves and our belongings at the seaside into stuffy quarters, such as we should unhesitatingly avoid when at home; and there is no doubt we undo, in such a case, much of the good the fresh air is calculated to effect in restoring the jaded nerves, and in bracing us anew for our work. There is a wisdom of holidays, as of most other things; and "health when holidaying" seems to be a watchword we have ample need of repeating in these days, when every resort is crowded to the full.

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The fashion of taking "American Drinks" has, apparently, settled down amongst us as a fixed habit. As most persons know, these beverages are imbibed through straws, and their cooling effects are thus experienced to the full. A warning has recently been conveyed against the practice of using again the straws which have done duty in restaurants. A contemporary gives the advice, "always snap your straws in two after using them;" and there is wisdom in the command. The idea of using straws which have been already employed, is not a pleasant one in any sense; apart from considerations that disease may be conveyed by these means. So we are bound to repeat the advice, "snap your straws after use," to those who favour the "Eye-Openers," "Corpse-Revivers," or other fashionable beverages of the day.

Medical and Sanitary Exhibition, 1881.—Reward of Merit.—International Health Exhibition, 1884.—Stand 69.—Diabetes. Van Abbott's Gluten Bread, and all other suitable Foods for Diabetics, Dietary Table, Menu, Cooking Receipts, and Price List, post-free on application. Delicate Children. Van Abbott's Hypophosphite of Lime Biscuits, for Children suffering from Debility, Deficiency of Bone, or Ricketts. See the *Lancet* and Health. Constipation. Van Abbott's Bran Biscuits. Dyspepsia. Van Abbott's Malt Biscuits. Van Abbott's Vegetable Bread and Milk, Saccholac for Infants, Imperial Granum, Rolled Avena, and all American Cereals for Infants and Invalids. Hathorn Table-Water direct from the Springs in Saratoga, U.S.A. G. Van Abbott, 5, Princes-street, Cavendish-sq., London, W.—[Advt.]

Original Essays

"Life is not to live, but to be well."—*Martial.*

SLEEP-WALKING AND RELATED CONDITIONS OF MIND.

By Dr. Andrew Wilson.

II.

Dr. Tuke, in his interesting volume,* gives additional examples of the "sleep-walking" state; and amongst these examples are several cases of highly interesting kind. A lady, on retiring to rest for the night, takes, in good humour, a magazine with her, which she knew her brother is most anxious to read. She reads the volume for some time before going to sleep. In the course of the night, she rises in a somnambulistic state from her bed, passes into her brother's room, and lays the magazine on his bed. In the morning, she has no recollection whatever of having performed this act. Here, no doubt, the dominant idea which operated in the mind of the sleeper was that of her brother's desire to possess the magazine. When the intellectual and conscious centres of the brain were lulled to sleep, other centres coming into play and stimulated by the idea in question, aroused the muscles to action, and carried out the intent which was thus unconsciously formulated in the brain.

Instances of sleep-walking, conducted often under circumstances of extraordinary kind, are well known to all students of mental science. Galen, of old, fell asleep whilst he walked, and was only awoke by knocking his foot against a stone. Felix Plater fell asleep whilst playing the lute, and continued until the instrument fell from his hand. A friend of Plater fell asleep while reading a book aloud, and continued to read an entire page while asleep. We shall notice later on cases allied to this last, in which an apparent power of appreciating written characters has been illustrated in the somnambulistic state. Soldiers on the march have been known, when thoroughly exhausted by fatigue, to fall asleep and to continue the march. In the retreat from Moscow this feature was seen in the French ranks.

Occasionally, feats involving considerable exercise of muscular and directive brain-power may be performed by sleep-walkers. A case is related in which a young man, falling asleep in the pump-house of a mine in which he worked, walked to the door, passed to the engine-shaft, descended twenty fathoms, and was found resting with his back on the ladder at that depth. He had no recollection of descending; but the fact that such descent was part of his daily duty, and had therefore come to be automatically performed, as it were, serves to account for the ease with which it was undertaken in his sleep vigil. The same remark holds good of the case related by Macnish, in which a sleeper walked along a particularly dangerous path for two miles, and plunged into water, having swam a mile and a half before he was discovered and roused. A Highland boy, accustomed to swim a river daily in the exercise of his work—that of herding cows on the opposite bank—was seen to rise in his sleep, and to repeat his daily duty. But for the fact that he was accustomed to contact with the water, there can be little doubt that the shock and cold involved in his plunge would have aroused him from his slumber. Martinet has given a case in which a watch-

* "Sleep-walking and Hypnotism." (Messrs. J. & A. Churchill. 1884.)

maker's assistant had an attack of somnambulism once a fortnight. In his sleep he was then accustomed to rise from bed and to do his work with the same accuracy as when awake. Macnish relates that a boy "dreamed" that he got out of bed, ascended to the top of a high rock, found an eagle's nest, and brought it back, placing the nest under his bed. The events he imagined as having constituted merely a dream, actually took place; the nest was found under his bed as described by the boy, while the precipice he had to scale was noted as one of the most dangerous and inaccessible in the district.

Dr. Tuke, addressing himself to the question of the *sight* of the sleep-walker, found in the answers which were returned in reply to his circular that in only one case were the eyes reported as being shut. The sleep-walker, as a rule, appears to have the eyes open and vacant. It is interesting, also, to note that a correspondent writes to Dr. Tuke that "while certainly some of the objects appear (to the sleep-walker) as they really are, others are adapted to the dream. For example, the bed-posts appear to be trees." "There are cases," says Dr. Tuke, "in which the power of seeing in the dark is very striking." The sight is often acute, and the dilated pupil of the eye found in this state "permits the sleep-walker to see objects with an amount of light which is practically darkness under normal conditions. In avoiding furniture, he is greatly assisted by acuteness of touch when it is in immediate relation to the idea upon which all his nervous energy is concentrated."

In this latter remark lies the explanation of much that appears wonderful and mysterious in the sleep-walker's acts. If we suppose the mental powers in ordinary waking existence to be concentrated and fixed upon a given object, to the exclusion of all others; or if we imagine one sense, say that of sight or hearing, to be strained to the utmost while the other senses are neglected meanwhile, we know that in such a case results of remarkable kind are attained. If the whole attention be concentrated on one sense or series of impressions, these particular impressions, for the moment, are received and perceived in a fashion so complete as to outrival the sensations experienced in the ordinary working of the senses. The case of the blind offers a parallel instance to this exaltation of sense which is seen in the sleep-walker. The acuteness of hearing in the blind is often remarkable; and we see here an increased sensitiveness of the hearing powers, due to concentration in that direction, following upon the deprivation of sight. Thus, the sleep-walker, according to the nature of his dream or action, has sight, hearing, or touch, as the case may be, exalted at the expense of other faculties. He may balance himself in safety on giddy heights, on house roofs, on precipices, and so forth, because his whole attention is concentrated on the performance of such a feat. He has acquired temporarily the dexterity which can only come in waking life by long training and experience, and he passes safely through ordeals of the most trying kind, because his nervous system has concentrated all its available strength in one special direction.

A second point of importance in the consideration of the sleep-walker's acts, is involved in this apparently puzzling activity of the senses unaccompanied by any *consciousness* of what is seen or heard as in waking life. We are so much accustomed in our waking existence to speak of and to think of seeing, hearing, touch, &c., as acts discharged in the full consciousness and knowledge of self and self's ways, that it is at first difficult to divest the mind of the notion that seeing, hearing, and other senses may be exercised unconsciously, and may be actively engaged, apart from all knowledge or appreciation of their work. Thus a person deeply engaged in the study of a thrilling novel, absorbed in the contemplation of a play, or abstracted in a day-dream or reverie, may be spoken to without evoking any response. In such a case the waves of sound affect the ear, as when the attention is fully bent on hearing what is said. There is no closing either ear or eye to sound waves or light waves. It is also probable that the hearing centres of the brain in the case of the person spoken to whilst absorbed in book or day-dream, are fully awake to the reception of sounds. What is wanting, therefore, is really the higher and truly intellectual power which receives, appreciates, and deals with the messages the senses convey. The sleep-walker, therefore, is largely in the condition of the person in the day-dream or who is absorbed in a book. If we can suppose that the intellectual powers are abolished or held in abeyance for the time being, and that concentration of one or more of the senses takes place and is controlled by the non-intellectual parts or centres of the brain, we may readily see how and why the sleep-walker is able to pursue his marvellous way through the land of dreams, and to guide his steps through the actual world with an accuracy he fails to exhibit in his waking hours.

Different individuals exhibit varying degrees of completeness of sense under the sleep-walking vigil. There is a case on record, related by Dr. Pritchard, in which one Negretti, a servant, who had been accustomed to walk in his sleep from his eleventh year, repeated in his sleep the duties of the day. He carried glasses and trays, and laid the table for dinner, his eyes being firmly closed. He frequently struck against doors and other objects; and when a bottle was substituted for the candle he carried, the bottle was held and treated as if it were a candle. He took coffee for snuff, and drank water for wine. Here the case would seem to differ in few particulars from one of the mesmeric state. It certainly shows a resemblance to that state rather than to sleep-walking pure and simple; but the two conditions, as we shall see later on, are closely related.

Dr. Tuke says, "It is true that a somnambulist may write well, although a sheet of pasteboard is interposed between his eyes and the writing-paper. If he has not crossed a *t* or dotted an *i*, and is requested to supply the omission, he may do so with great precision. But if the paper be shifted, his corrections are no longer in their right places on the paper, but wrong to the extent to which the paper has been moved." In one case, a lady wrote letters with great accuracy in a room so dark that her physician could not distinguish the objects in it. "That she depended, however, upon her sight, was shown by the fact that when an opaque body was placed between her eyes and the paper, she stopped writing and was much disturbed." Here the case of the typical somnambulist depending on an exaltation of sense for the accomplishment of her movements was probably illustrated.

In certain cases in which Dr. Tuke had the opportunity of interrogating the subjects of sleep-walking, the sense of hearing was said to be good; only one of his correspondents wrote that he "did not hear when spoken to." One could hear when in the somnambulistic state, but could not see. As regards *smell*, in several cases this sense appeared to be deficient in the sleep-vigil. One subject dreamed of smells; he fancied there was an escape of gas; rose, and looked all over the bed-room for the gas-pipe, no gas being laid on in the house in which he lived.

(*To be continued.*)

Pure Water is such a vital necessity that, without it, illness is certain. None are more prone to the ill effects when impure than the young. To ensure a pure supply send a post-card to the London and General Water Purifying Company, Limited, 157, Strand London, W C., who will return particulars post-free.—[Advt.]

THE TRICYCLE, AND ITS RELATIONS TO HEALTH.

By Various Writers.

VIII.—KEEPING THE MACHINE IN ORDER.

By W. J. Spurrier, C.T.C.

By special desire I shall devote this paper to directions for keeping the machine in order.

I must first remark that "keeping a tricycle in order" is *not* an arduous undertaking; it is when the machine has been allowed to get *out* of condition that *work* is required to restore its pristine glory. With a high-class tricycle of the most recent construction, and by a maker of repute, very little attention will be required to keep the machine in perfect order, for all the parts are, from their thorough construction, either not liable to wear or are easily adjusted. But as there are thousands of tricycles in use that were manufactured before the present high state of perfection was arrived at, or which may not be quite such elaborate construction, some particulars or instructions for their maintenance are much needed.

The plan I shall adopt, and which I think will be found to be the most satisfactory, is to give a *seriatim* general description of the various parts of a tricycle, with the methods for preserving the same in the highest state of efficiency. A tricycle with a stiff spring will, on account of the extra vibration caused, require much more attention and be less durable than one having a flexible spring exactly suiting the weight of the rider.

I will at first suppose that we have a new machine under consideration, one of the highest class, and of the most perfect manufacture, in which case it will be quite ready for taking an initial trip. Before starting, of course, the saddle and handles must be adjusted, and it will be best to oil the various parts requiring lubrication. Considering that the tricycle, whatever the amount of work it is wanted to do, is always ready and willing to perform its share, and all that it calls for in return is the application of a few drops of oil, it cannot be thought to be too much trouble to comply with this extremely moderate amount of attention.

Although it is best to oil the tricycle every time it is taken out for a ride, especially if it has been standing in its house some days, it is really only considered necessary to oil plain bearings once for every fifty or sixty miles traversed, and ball-bearings should run at least four times these distances without attention. I find the following the most satisfactory manner of proceeding:—First open all the lubricators, or oil hole covers. To the latter, only apply a little oil; but *fill* the lubricators. As each part is oiled close the lid or cover, and proceed to the next, until all are lubricated; there are other places where oil is required—these are generally only oil-holes, such as the steering-head, rack and pinion, &c. Care must be used to apply enough, and only enough oil; for any in excess runs over the machine, collects dirt, and is a source of trouble in more ways than one. When oiling parts that revolve, such as the pedals, apply a spot of oil and turn the part quickly, repeating the operation until fully lubricated. The easy running and durability of the machine, depend upon proper lubrication. If, on your tricycle, there are any lubricators that you cannot open, but have to push a little valve down with the tube of the oil-can, *change them for some that do open.* Oil dissolves rubber, therefore must not be allowed to run on to the tyres or pedal rubbers.

The next point, and an important one, is in maintaining the appearance of the frame, particularly in front-steerers. It is that, unless there is a step for mounting by, don't put your foot upon the frame, for if you do, in two or three times using the paint, enamel, nickel, or whatever the finish may be, will be irretrievably damaged, and can only be patched up, or entirely re-coated at considerable cost.

A tricycle primarily consists of three wheels, with the necessary framing; to which latter the wheels and cranks are attached by suitable bearings, the seat and handles by their rods, screws, and sockets, and provision is made for the steering, by either one or two of the wheels; in some tricycles even all the three wheels take part in the steering.

The fewer parts there are in a tricycle, compatible with efficiency, the less liable it is to derangement.

The wheels consist of the hub, the spokes, the felloe, and the indiarubber tyre. The spokes are generally passed through holes in the felloes and screwed direct into the flanges of the hub, and then the tyre is cemented or otherwise fastened into the felloe. The parts liable to get out of order are the spokes and the tyres, these latter sometimes becoming loose. When this is the case, the spokes must be tightened by the aid of a spoke tightener, and the tyres re-secured by the application of heat and a little cement. The spokes have to be adjusted with the greatest care, not by screwing them up as far as they will go, but gradually, a little at a time, spinning the wheel (which should be raised from the ground for that purpose by a lifting jack) as each spoke is manipulated, to see that the wheel remains true. Tyres are usually cemented into some variation of a crescent section felloe (hollow felloes are the best), and the mode is fairly successful when the workmanship is good. When a tyre becomes loose in places, if there is plenty of cement in the felloe, all that is required is to melt the cement, by applying a hot iron (a poker will do) and pressing the tyre in, binding both together with string, or some tyre binders, which is easier. These latter are always useful in case of a loose tyre when riding, and should always accompany the spanner. If it is a more serious rupture, and there is a deficiency of cement, the felloe and tyre must be perfectly cleaned, all the old cement removed by chipping and scraping, and finished off with petroleum or turpentine. Then some new cement must be melted in a ladle and poured evenly into the felloe and the rubber pressed in as before described. The felloe has now to be *gently* heated, just to melt the cement, so that a good contact is obtained and the tyre well embedded in the cement. A gas jet or spirit lamp should be used for this purpose, and a little care is requisite to avoid shrivelling the paint.

The tyres should be occasionally tested by a side pressure of the thumb, to ascertain that all is secure, and pass the hand over the spokes to see that they are all tight. Laced or tangent spokes are tightened by means of small nipples, which are passed through the felloe. Where these laced spokes cross each other they are soldered, and it is most important that when any come unsoldered, they should at once be re-secured.

The wheels are mounted either upon spindles, forming bearings for the hubs, or a through axle, which are respectively secured to the frame by lugs, bosses, or bearings. Where the wheels are mounted on spindles any side-shake is taken up, with plain bearings usually from the outside, sometimes a cap having first to be removed; but ball-bearing hubs have mostly to be adjusted from the end nearest the frame.

Swimming and Ling's Swedish Exercises.—Mrs. Florence Williams, Certificated Teacher. Schools and private families attended.—The Crown Baths, Kennington Oval, S.E.—[Advt.]

AMATEUR PHOTOGRAPHY FOR LADIES.

By a Lady.

The development of photography has, in a manner, revolutionised both art and science. Formerly, the only possibility of obtaining pictures of oneself or friends, or home, or, for instance, of a beautiful landscape, was to spend both time and money on having them painted; but we have changed all that, and now, in a few minutes, and for a few pence, we can, as it were, make Nature portray herself lastingly for our own purposes. There is grandeur in the thought that we puny mortals can force *Light*, the first-born of heaven, to picture for us that which it creates.

Moreover, it is not only on artistic or sentimental grounds that photography is valuable. To it science owes much, and will, in time to come, owe infinitely more. It renders possible the preservation of that which otherwise would quickly pass away, thus being of great service to science. Thus the spectrum has been photographed, and in astronomy it has been decided by this means what metals exist in more than one of the stars of heaven, and even in the sun itself. For zoological purposes its use is incalculable, it is equally so for botany, and for the twin sciences of medicine and surgery, it opens a new field of inquiry and new facilities for the record and comparison of pathological states. This medical men are now beginning to perceive, and at the National Orthopædic Hospital, for instance, all the most remarkable cases are photographed, and thus kept for future use. But neither artists nor scientists at large are yet thoroughly awake to the advantages which photography offers them. Until the present time, photography has been almost a dead letter to all but a few more or less technical practisers of the art, who have taken it up as a commercial speculation.

That this should be so is a slur on the cultured part of the population. Photography is an art in itself, and, moreover, a very useful one, and as such it should be studied and practised. Fully impressed with this idea, I recently made inquiries as to where I could get taught how to photograph by a competent person. I soon heard that the London Stereoscopic Company have a studio at their Regent-street House, devoted to the use of ladies and gentlemen who, like myself, are anxious to learn the art. Calling there, I was introduced to Mr. G. Humphries, who acts the part of tutor, and who, I soon discovered, was *facile princeps* in the art of imparting instruction. He told me, to my great delight, the art is so simple that it can be learned in *four* lessons, and that all the necessary apparatus can be obtained at prices ranging as low as twenty-five shillings. The apparatus enables one to take portraits, groups, &c., and packs up into a very small space, so that it may be carried on country trips or travels, and be the means of obtaining views both of landscape and architecture, and thus chronicling the varied sights of the holiday.

Formerly when the *wet process* was used in photography, very cumbrous apparatus, including a dark tent, was required, and a quantity of chemicals had to be used which caused both inconvenience and annoyance to the amateur. By the "dry" process, however, which has now come into use, plates are supplied ready sensitised, which, after exposure, need not, as the wet had to be done, be developed at once, but can be kept for months, and then be developed quite as successfully as if done immediately. Thus the amount of gear used is extremely reduced, and that obstacle removed from the path of the amateur. Moreover, the "dry" plates have another advantage, in that by their use those stains are avoided which, in the "wet" process, so disfigure the hands and clothes. The process is cleanly right through, an advantage which will be much appreciated by ladies, who, at any rate, would have no desire to see their hands dyed a deep orange colour, or a dainty summer costume ruined by the fall of a drop of iodine. All that an amateur now needs is to understand how to focus, and to judge the amount of exposure required. This is taught in the first two lessons, after which negatives can be taken. The third is devoted to developing and printing, which is not at all difficult, and the fourth is recapitulatory.

However, if amateurs do not want the trouble of developing their negatives and printing copies from them, all they have to do is to pack them up and send them to the London Stereoscopic Company, where this part of the work will be done for them. For my own part, I must say I should like to feel the proud consciousness that I had done everything connected with the photographs myself; but, of course, if one has not much time to spare, it is best to get the more mechanical work done by others. It would be a very great convenience for any one who had taken a number of negatives—let us suppose during a summer holiday—and not had time to develope or print them, to be able to send them off just as they were taken, and get them returned in a perfect condition, mounted and ready to put in an album or give away to friends. I was extremely glad to learn that great success has attended the efforts of lady amateurs, and that they show great ardour and perseverance in acquiring and practising the art. There is a section of the young lady population for whom a new occupation is literally a boon of priceless kind.

Ladies will also find that by learning how to photograph they have obtained a most interesting and engrossing amusement for their leisure hours, and a great help, if, in their more various studies, they go in for the natural sciences. Even philologists may also find a help in this art—a fact which was fully demonstrated to me the other day, by the sight of some beautiful photographs of some ancient Hebrew, Syriac, and Arabic manuscripts in the Bodleian Library at Oxford. The photographs, I was surprised to find, were more easy to read than the original MSS., as in the former by some means or other the characters had been rendered more distinct. In fact, there are but few pursuits in life in which photography may not be of use, and I am positively astonished to think that it should have been neglected so long and so generally. This neglect is probably owing to ignorance of the value of the art, and to a popular idea that it is difficult to acquire.

It is not only to ladies of independent means that I would recommend the study of photography; I see in it a way of providing a lucrative income for those who are forced to seek their own livelihood, and whose refinement and delicate appreciation of beauty would here be turned to good account, instead of being shocked by the vicissitudes of rougher work, which thus becomes a source of pain. I wish that photography were taught generally, and I hope that even now there are many studios where it may be learnt; but one must congratulate the London Stereoscopic Company on their liberality in thus opening up to the public an almost unknown art.

Scott's Midlothian Oat-Flour.—There is no preparation which can be assimilated with greater facility than such a flour as this. Those who suffer from indigestion might substitute for their ordinary breakfast materials this flour, prepared according to the recipe given by Messrs. Scott and printed on the tins.—Ed Health.—[Advt.]

Powneeby's Pure Wines and Brandies, as analysed, and especially selected to suit medicinal purposes, may be obtained in small quantities at wholesale prices. Free delivery within fifty miles. Circular and price current by post from Powneeby & Co., Wine and Brandy Importers, 183, Oxford-street London, W.—[Advt.]

DISEASES OF PROFESSIONAL COOKS.

Dr. L. M. Reuss has recently published an interesting paper upon the diseases of professional cooks, based upon information collected by him in his capacity as physician for a number of years of the Society of Cooks of Paris.

The special affections of these are, first, those due to alcoholism, then anæmia, phthisis, rheumatism, dyspepsia, diseases of the liver, varices and ulcerations, and certain diseases of the skin. The great danger for the cooks is the kitchen. In private houses the kitchens are generally well placed and sufficiently ventilated, but in the restaurants and cafés of hotels the kitchens are generally in very bad sanitary condition. They are situated in the basement or cellar, insufficiently lighted, requiring gases to be burnt in them continually, are overheated, and at the same time subject to strong draughts of cold air.

The professional cook usually commences his education while very young. It is not rare to see very good cooks who are not yet of an age to be subject to the conscription. It is therefore at, and immediately after, puberty, at the moment of special development of the body, that the boy is placed in the worst possible conditions as regards pure air. If he has any hereditary taint or predisposition to phthisis it will certainly be developed under such circumstances. Consumption is not unfrequently found among cooks, as is also alcoholism. It is frequent among them for two reasons: first, the impure air which is breathed, and, second, the constant variations of temperature to which they are exposed. These same causes produce in many rheumatism, which in many cases, in the opinion of Dr. Reuss, is distinctly due to the unsanitary conditions of the kitchen.

Anæmia, or want of sufficient red blood, is the rule among cooks. Most of them are large and stout, but the skin and eyelids are pale, and they suffer from palpitations of the heart, and, in short, from all the affections connected with insufficiency of red blood-corpuscles. Varicose veins, due to prolonged standing, and hernias, caused by lifting pots, &c., are frequent among them. Much might be done to improve their health by providing well-ventilated and lighted kitchens, but the chief source of their ailments is one which they themselves must control—namely, the the excessive use of wines, beer, and alcoholic liquors of all kinds.

The French method of administering castor oil to children is to pour the oil into a pan over a moderate fire, break an egg into it, and stir up; when it is done, flavour with a little salt, or sugar, or currant jelly.

Oysters as Food.—Oysters in the raw state are more wholesome than when cooked, the effect of heat being to coagulate and harden them. The firm, hard part of an oyster consists of the thick muscle by which the shell is closed, the power of which may be judged of by the difficulty of opening an oyster. The central, bulky portion consists chiefly of the liver and is most readily digested—this alone should be taken by persons of weak digestion. There is considerable difference of opinion and of experience as to the digestibility of oysters. But from the time of the Romans to our own day they have been highly esteemed as nutritious articles of food. The smaller, common kinds of shell-fish, such as cockles, periwinkles, &c., should be avoided. The almost universal employment of vinegar, pepper, and salt, and olive oil in many cases, as condiments with shell-fish, appears to be founded on sufficient reason as well as experience. They facilitate the action of the gastric juice in disintegrating the solid fibrous material, and thus aid their digestion.

Personal Health

"Be timely wise;
With health all taste of pleasure flies."—*Gay.*

INFLUENCES OF SCHOOL LIFE ON EYESIGHT.

By Simeon Snell.

Ophthalmic Surgeon to the Sheffield General Infirmary.

SECOND PAPER.

Let us now pass to the consideration of circumstances incident to school-life which act prejudicially on vision, and of the means which may mitigate or overcome them. Light and ventilation are of prime importance. Impure air, in crowded rooms, by its injurious influence on the pupils' general condition, acts, also, on their eyesight. Light is a subject which it is necessary to refer to at greater length. It is not only of importance to have good *light*, and plenty of *light*, but light properly applied. Many of the modern elementary schools are substantially and handsomely built on the exterior, and, on the whole, perhaps conveniently so inside. In some instances, however, it would seem as if appearance and the architect's reputation had received more consideration than the purposes for which the building would be used. Certainly the question of lighting has not always been settled in a manner to be desired.

Light, then, in a school-room, it may be said, should be ample; not, however, beaming full in the scholars' faces. The windows should be fairly high up, not lower than the height of the children, or the room may be lighted from above. If the windows be situated low, or reach to the floor, it will be advisable for the lower panes to be of ground-glass. The most suitable direction for the light to come from is the left and above; for the reason that on the right side the hand being employed, the task or book before the scholar must otherwise frequently be in the shade. To employ the eye in a dim light, is in the highest degree injurious. All are aware of the discomfort occasioned by reading or working at dusk when the light is failing, and, moreover, the book has to be brought nearer to the eye, another disadvantage. If it is necessary to employ artificial illumination, the light should be ample and steady, and come from a proper direction. Something may be said as to the kind of light to be used, but it cannot be entered into now.

It seems hardly necessary to allude to, what should be obvious, that the school-furniture should be adapted to the size and requirements of the pupils; yet in some schools one regulation size seat and desk is employed for all scholars. Tall and short children are now indiscriminately mixed. The seats should be arranged according to stature, and not age. A teacher recently informed the writer that in his school one regulation-sized desk was employed for 800 of his scholars. Professor Snellen observes:—"It is absolutely impossible that a tall and short boy will both sit equally well on the same seat and the same desk. It is just as unlikely as that the same clothes would fit the same pupils. Yet in many schools we find desks and seats of the same size for all."

The desks should have seats with backs to them, and the slope of the desks has been suggested as 40 deg. for reading and 20 deg. for writing. There are schools still in which

COCA OR CUCA LEAVES.—The new stimulant, gives renewed life and vigour to the *Weary* and *Overworked*. Dr. Blunt, of Northampton, says:—"The recuperative powers of this restorative are truly astounding." Sample packets, together with medical and scientific opinions, 13 stamps, post free, from J. T. Marks & Co., 17, Newcastle-street, Farringdon-street, E.C.—[Advt.]

seats are used unprovided with backs. This is not merely prejudicial to eyesight, but, as Mr. Leibreich and others have pointed out, an important means of causing spinal curvature, a condition not uncommonly arising during the period of school-life. The extreme importance of the proper seating of the scholar can hardly be over-estimated, and has received much attention at the hands of such excellent authorities as Snellen, Leibreich, Cohn, and many others. The reason is obvious when it is understood that work should be accomplished at a distance of ten to twelve inches from the eyes, and anything that pushes the pupil nearer his task is attended with risk of injurious consequences. The faulty construction of school-seats is responsible for the crooked and stooping posture assumed by many school children, and in this manner encouraging the production of short sight.

From what has just been said, it will be evident that the methods employed in writing require careful consideration. The common slate so generally in use, has for long been recognised as unsatisfactory, owing to the little contrast between its surface and the pencil-markings. Moreover, the shiny surface encourages a bad position in writing, and when the slate has become greasy, the contrast between it and the pencil is considerably diminished. At any time, the contrast is much less than with black letters on a white surface, and it has been proved by experiments that letters written on a slate, to be equally legible, must be placed nearer to the eye than characters of the same size with pen and ink, on ordinary white paper, the difference being as much as three to four. Mention may be made of the minor evils of the noise of writing, and the sharpening of pencils. At Zurich, Professor Horner suggested the abolition of slates in schools. In their place, he advised the employment of ink and paper. This was practically tested. Noise in the school was lessened; care in writing increased, on account of the difficulty of correcting faults, and it was found that the teacher could better guide the improvement of the scholar in the copybook. Pen and ink was exclusively used for nearly two years; but it was found that there were difficulties in commencing the teaching of writing in this manner; and for the younger children there were advantages in the use of slate and pencil.

The School Board adopted the resolution that pen and ink should be used as writing material, but that the teacher should be permitted to make use of slates for beginners in the first winter term. Professor Cohn adopted these conclusions, and to obviate the evils complained of in the ordinary slates, has had manufactured white composition stone slates. These have a non-shiny surface, and a specially-prepared black pencil is used, the markings of which are easily erased with a wet sponge; or a soft lead-pencil may be employed. The slates are manufactured, also, with or without the surfaces ruled. The writer is practically acquainted with these slates,* and has recommended to others their use.

The position assumed by scholars in writing has received a good deal of attention. Last year, Drs. Berlin and Rembold published, at Stuttgard, their "Investigations on the influence of writing on the eyes and attitude of school children."† Their observations are most valuable, and it will not be without interest to refer briefly to them. They recommend the retention of the slanting position of penmanship, and suggest the following rules for schools:—The inclination of the letters, *i.e.*, the angle which the downward stroke makes with a line perpendicular to the ruling of the paper, should be 35 deg. to 40 deg. The book should not be placed to the right, but as nearly as possible before the middle line of the body, and so inclined that the direction of the writing rises from the left and below to the right and upward at an angle of 30 deg. to 40 deg.; when in the proper position the downward stroke is perpendicular to the table's edge, and the centre of the line just being written opposite the median line of the body. The upper part of the body remains upright, supported by the spinal column, which is prevented from becoming tired by resting its lower part against a support. The transverse axis of the body—the line between the shoulders—is parallel to the lower edge of the table. An oblique position of the body is deemed unjustifiable; the head is lowered only sufficiently to obtain a suitable angle between the visual plane and the surface of the table. The body should not be pressed against the edge of the table, but kept at a distance of three centimètres from it. The elbows are kept a little lower than the edge of the table, and the fore-arms, and not the elbows, are laid on the table.

The necessary movements for the formation of letters and words must be performed by the fingers and wrist; the right fore-arm must not move its point of support as the writing moves outwards, but must revolve about it as a centre thus describing an arc upon the table. It is suggested that children should use short lines.

In consequence of the injurious results to the eyes of too close an approach in writing, these observers insist on the importance of young children being taught as much as possible from objects not requiring close vision. Instruction in writing should, at first, be as limited as possible; reading of distant objects (black board) should be first taught, then of books, and finally of writing, the time being very limited, and being followed by a pause; letters should be large, symmetry and beauty being of less importance; slanting lines of black boards and books should be omitted; writing at home curtailed as much as possible.

Too much writing for children is to be deprecated, and impositions—a not uncommon mode of punishment—should be dispensed with. Dictation also serves but little good purpose, and would be better avoided.

The manner in which school books are printed is a no less important matter than the position assumed in writing, the straining over small and bad type being in the highest degree injurious. Many of the school books in use at present are well printed. Arithmetic books, however, with the pages crowded with figures, are, it is understood, among the worst, when they should be among the best. It is, moreover, evident that many of the books issued from the press are not what, hygienically considered, they should be. Much, too, of the cheap literature devoured by the young is only indifferently printed, nor, indeed, do the daily papers exhibit that care for clearness which, considering the number of eyes which pour over their columns, should be the case. Our endeavour for all school books should be to provide fairly large type, clear and distinct, on good paper, and legible without difficulty, neither should the books be too heavy. The paper should be toned, as more comfortable to the eye than the greater contrast of purely white paper and black letters.

(*To be continued*).

* To be obtained now of O. Newmann & Co., 40, Cheapside, London, E.C.

† The difference between the German and English letters must be borne in mind. The principle may be accepted.

Scott's Midlothian Oat-Flour.—Messrs. A. & R. Scott, of Kingston, Glasgow, and Finsbury-square, London, have prepared a singularly pure and nutritious "Oat-flour," which bids fair to take high rank among the food products which are specially adapted for infants and invalids, and for the use of dyspeptics in particular, whose digestion is weak, and whose stomachs refuse to assimilate foods of ordinary kind.—Ed. Health.—[Advt.]

Public Health

"Health is the first Wealth."—*Emerson.*

ON THE COMPOSITION OF COMMERCIAL JAMS.

By A. Wynter Blyth,

Analyst for St. Marylebone.

Some time ago an acute observation was made by my *confrère*, Dr. Adams, of Maidstone, viz., that boiled apple pulp was coloured blue with iodine, and also gave a colour with some aniline dyes differing from that of other fruit pulps. Stimulated by this new light, and desiring to see whether the test was trustworthy, I analysed very fully no less than twenty samples of jam, all of them from noted makers and known to be genuine.

So little has been ever done in this way that the general results are not uninteresting.

The method of analysis was chiefly this:—The *water* was estimated by drying a previously weighed portion, and then again weighing. The sugar was estimated by a volumetric process; the albuminoids were calculated from the amount of nitrogen, as found by a "moist combustion," in the same way as I have detailed in a paper to the Royal Society relative to Weston's feat; while the insoluble matter was found by dissolving all that could be dissolved, and collecting, drying, and weighing the remainder. The following table gives the general results of this investigation:—

Table.—Composition of various samples of jam, purchased in the Parish of St. Marylebone, under the Sale of Food and Drugs Act.

No.	Name of Sample.	Water.	Fruit and Invert Sugar.	Albuminoids.	Skin Tissue and Pips.	Ash.
1	Raspberry Jam	19·19 ...	46·14 ...	3·54 ...	7·66 ...	0·51
2	„ „	19·41 ...	47·16 ...	3·54 ...	7·01 ...	0·61
3	„ „	20·74 ...	49·16 ...	3·10 ...	7·16 ...	0·60
4	„ „	27·16 ...	56·14 ...	2·65 ...	8·14 ...	—
5	Strawberry Jam	17·43 ...	46·17 ...	2·65 ...	2·20 ...	0·38
6	„ „	17·68 ...	48·04 ...	2·65 ...	2·31 ...	0·41
7	Gooseberry Jam	20·54 ...	45·10 ...	3·54 ...	3·43 ...	0·46
8	„ „	19·50 ...	47·16 ...	2·65 ...	2·15 ...	0·19
9	Black Currant Jam...	21·12 ...	49·64 ...	3·54 ...	7·86 ...	0·59
10	„ „ ...	21·04 ...	46·64 ...	3·54 ...	7·91 ...	0·64
11	„ „ ...	22·14 ...	48·16 ...	3·10 ...	7·64 ...	0·64
12	Plum Jam.....	27·58 ...	37·19 ...	2·75 ...	1·02 ...	0·40
13	„ „	26·14 ...	41·64 ...	3·10 ...	1·14 ...	0·41
14	„ „	25·64 ...	42·16 ...	3·10 ...	1·64 ...	0·44
15	„ „	21·76 ...	48·64 ...	3·54 ...	1·17 ...	0·54
16	Greengage Jam	20·32 ...	42·85 ...	3·10 ...	0·96 ...	0·27
17	Orange Marmalade ...	22·96 ...	50·61 ...	3·10 ...	4·59 ...	0·41
18	„ „ ...	21·74 ...	48·60 ...	3·54 ...	5·14 ...	0·46
19	„ „ ...	21·40 ...	46·41 ...	3·54 ...	7·79 ...	0·61
20	„ „ ...	27·40 ...	50·16 ...	3·54 ...	7·61 ...	—

Of course, the percentages do not make up the 100, for the cane sugar added by the manufacturer has not been included. What the analysis does represent is the general composition of the fruit, plus a certain portion of added sugar which has been "inverted" during the boiling.

The important point brought out by the analysis is this: that properly-made jam has a more definite composition than is usually believed, and that the relationship of insoluble matter to the whole, for any particular jam, is fairly constant. Thus, the albuminoids in four samples of raspberry jam only varied from 2·65 to 3·54 per cent., and the insoluble matter from 7·0 to 8·14 per cent.

Three examples of black-currant jam yielded insoluble matter, in which the variation was only to the extent of 0·3 per cent. and the albuminoids varied but 0·4 per cent. Even orange marmalade was fairly constant in the amount of albuminoids, although the insoluble matters varied in quantity to a more considerable degree.

On adding boiled apple to any of these jams, and then staining the whole with the aniline dye known as Spiller's Purple, and removing the excess of the stain by washing with water, the apple-pulp was always stained either a bright red or pink, and stood out among the blue jam with remarkable distinctness, and could be picked out by hand; so that this test will be found extremely useful as a popular test, requiring no apparatus, and but little skill.

It would also seem, from my experiments, that turnip-pulp (which, by the way, is very rarely added) increases the insoluble matter very much, the turnip tubers being full of insoluble vegetable fibres.

A CHEAP SUMMER DRINK.

The Vienna *Backer und Conditor Zeitung* gives a receipt for a summer drink, which is to some extent founded upon the *eau sucrée*, with which the Parisians are so well acquainted. About seven gallons of water are brought to boiling point, and four-fifths of white sugar are dissolved in it during the boiling. When the liquid has cooled down to about 72½ degrees Fahr., two cups of yeast are added, and the whole is put into a beer cask and placed in a cellar. Fermentation soon takes place, and the yeast is expelled through the bung. The cask is from time to time filled up from the solution of sugar, so that the yeast can flow out. When this no longer occurs the cask is bunged and left quiet. In case no more of the solution is available, the filling can take place with pure water. After some days, if clear, it is bottled off into good thick wine-bottles, about one-third of an ounce of white sugar being put into each. The bottles are then sealed, and placed upright in a cool cellar. In a few days the wine is ready for use, and on opening will effervesce like champagne. The cork, in fact, is often expelled forcibly. This liquid will be found to be strongly impregnated with carbonic-acid, and with but little alcohol. A more agreeable taste may be imparted by putting in the peel of two fresh lemons before the fermentation; or a couple of drops of oil of citron before drinking. Other fruit essences may also be used with varying results.

A Perilous Toy.—The so-called "serpent's eggs" of the toy-shops contain, says Dr. George Hay (*Medical Times*), from one to three-tenths of a grain of sulphocyanogen, quite enough to kill a child if he should happen to swallow it.

Glycerine in Fevers.—Dr. Semnola recommends the following mixture as a good remedy in the wasting of body of fever patients: Pure glycerine thirty, citric acid two, and distilled water five hundred grammes: one or two tablespoonfuls every hour. Glycerine, which is an economising agent (*agent d'épargne*), and a succedaneum of cod-liver oil, may, according to Dr. Semnola, be employed with great advantage in the treatment of fevers of prolonged duration, such as typhoid, in order to diminish febrile consumption. Its employment is especially indicated when there is reason to fear that alcohol, used so much at the present time, may cause excitement of the nervous centres capable of aggravating the disease.

A Valuable Invention.—It is gratifying to learn that Mr. R. Adams, of 17, Blackman-street, London, S.E., whose fanlight-openers and silent door-springs are being extensively used, has received large orders for his Patent Reversible Window. The sashes, although they slide up and down in the usual way, can be instantly turned inside out, enabling anyone to clean each side of the glass with ease, while standing in the room.—[Advt.]

Recreation and Health

"Health is the vital principle of bliss,
And Exercise of health."—*Thomson.*

HEALTH AND HOLIDAYS.

FOREIGN HEALTH-RESORTS.—IX.

By a Physician.

Genoa.—A very beautiful city, with much to interest the sightseer, but possessing so cold a climate, as compared with other towns on the Western Riviera, that its claims as a health-resort may be briefly dismissed. An additional drawback is the insufficient sanitation of the town.

Homburg.—This celebrated German spa—celebrated as much for its social attractions as for the undoubted benefit to be derived from its springs—is situated about eleven miles from Frankfort, and 600 ft. above the level of the sea. It is a town of some 10,000 inhabitants, lying at the foot of the Taunus range of hills, though some distance removed from them. In itself Homburg can scarcely be termed a very picturesque spot, but what Nature has failed to endow it with, Art, through the agency of man, has amply supplied. If tastefully laid-out grounds, shady avenues, numerous thickly-wooded walks, beautiful villas, an admirable Kursaal, with park-like gardens surrounding it, and, in the way of amusements, frequent balls, *fêtes champêtres*, operas, lawn-tennis parties, and a variety of other entertainments, can make a town attractive, then undoubtedly Homburg ought to be so; and attractive it undoubtedly is. The principal springs are the Elizabethen Brunnen and the Kaiser Brunnen, and it may be mentioned that these two springs contain a larger proportion of the chlorine compounds, carbonic acid gas, and iron than the Kissingen waters, which we shall presently have to consider. Other springs at Homburg are the Ludwigs Brunnen, the Stahl Brunnen, and the Louisen Brunnen. All contain chloride of sodium (common salt), iron, and carbonic acid gas, but in very different proportions. Thus, the Elizabethen spring has most common salt, seventy-five grains to the pint; the Stahl Brunnen most iron—three times as much as the Elizabethen and twice as much as the Louisen; and the Kaiser Brunnen is richest in carbonic acid gas, having about a third as much again as the Elizabethen. The Homburg waters also contain, in varying proportions, the chlorides of magnesium, calcium, ammonium, potassium, and lithium. They are highly beneficial in cases of dyspepsia, more especially in those forms where, in addition to a certain torpidity of the digestive organs, there is a tendency in the patient to rheumatism and gout; also in constipation and many diseases affecting the blood and nerves. The climate at Homburg is mild and equable, and though the town is much exposed to the sun, the heat which would otherwise ensue is greatly modified by the cool refreshing breezes which are constantly wafted over the distant hills. In this way, Homburg may be said to enjoy all the benefits of mountain air without the disadvantage of a confined position. The season extends from May to October. For the rest, the soil is principally slaty, the drainage and water supply good, and the bath accommodation excellent. Hotels: Hôtel de Russie, Hotel Victoria, Hôtel des Quatre Saisons, Hôtel de Belle Vue, Hôtel de l'Europe, Ritter's Parc Hôtel, &c. Fares from London, *viâ* Calais, Brussels, Cologne, Bingerbruck, Mayence, and Frankfort: First class, £4. 9s. 6d.; second class, £3. 5s. 6d.

Hyères.—A very charming health-resort on the Western Riviera, thirteen miles from Toulon. It is situated slightly inland, being three miles from the sea, and in this respect it may be said to have an advantage over Cannes, Nice, and other winter stations on the Mediterranean coast. The great drawback to Hyères is its exposure to the north-west wind, or "mistral," which, at certain seasons of the year—more especially in the autumn and spring, but occasionally in the winter—blows with terrific force. This disadvantage apart, however, the town has many recommendations. From its position, inland and on a slight declivity, the air is more bracing and less irritating than at other health-resorts in the neighbourhood, and for this reason, in some forms of disease it is more suitable. Patients of a nervous temperament, who have tried Cannes and Mentone and found these places too exciting, do well here; and though there is a considerable divergence of opinion as to its suitability in cases of chest disease, there can be little doubt, we think, that in certain forms of bronchitis—as, for instance, where there is much inflammatory disturbance, loss of sleep, and nervous irritability—it is well adapted. The average winter temperature is about 48° (the statistics on this head, however, are somewhat conflicting), and the number of rainy days, from October to March inclusive, thirty-seven. Population, 14,000. Hotels: Grand Hôtel des Iles d'Or, Grand Hôtel Continental, Hôtel de l'Ermitage, Hôtel des Ambassadeurs, Hôtel Beau Séjour, &c. Fares from London, *viâ* Calais, Paris, and Marseilles: First-class, £7. 14s. 6d.; second class, £5. 15s. 6d.

Kissingen.—A very popular watering-place in North Bavaria, situated in a beautiful valley on the banks of the Saale, amid richly-wooded hills, about thirty miles north-east of Wurtzburg, and 590 feet above the level of the sea. It has long been noted for its mineral springs, which contain principally chloride of sodium, sulphate of magnesia, and carbonate of iron. They are especially useful in cases of dyspepsia, constipation, rheumatism, hysteria, and in certain affections of the liver. The season at Kissingen extends from April to October. The climate is mild but moist, and there is a very considerable rainfall. The accommodation for visitors is in every respect excellent, and amusements, of a varied kind, plentiful. Population, 3,200. Hotels: Royal Kurhaus, Hôtel de Russie, Hotel Victoria, Hotel Sanner, &c. Fares from London, *viâ* Calais, Cologne, Bingerbruck, Mayence, and Frankfort: First class, £5. 2s.; second class, £3. 14s.

Kreuznach.—A town of 14,000 inhabitants, situated in the picturesque valley of the Nahe, ten miles from Bingerbruck on the Rhine. It is especially celebrated for the cure of scrofulous disorders, having gained quite an exceptional reputation in this respect. There are various mineral springs at Kreuznach, but only one is used for drinking purposes—the Elizabethen, which is close to the town—the others being at some distance from it. For all scrofulous diseases, or all diseases which can in any way be traced to a scrofulous tendency, this spa proves highly successful. Hotels: Hôtel de l'Europe, Hôtel Oranienhoff, Hôtel Kautzenberg. Fares from London, *viâ* Calais, Brussels, Cologne, and Bingerbruck: First class, £4. 2s.; second class, £3. 2s. 6d.

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Sucking a piece of borax clears the voice of a singer which has become husky. A little nitrate of potash in water is also good.

Jottings from the Journals

"Th' ingredients of health and long life are
Great temperance, open air,
Easy labour, little care."—*Sir Philip Sidney.*

People who Eat no Bread.—The *Gartenlaube* has an article on those civilised nations, a large proportion of whose peasantry eat little or no bread. Baked loaves of bread are unknown in many parts of South Austria and of Italy, and throughout the agricultural districts of Roumania. In the villages of the Obersteiermark, not very many miles from Vienna, bread is never seen, the staple food of the people being sterz, a kind of porridge made from ground beech-nuts, which is taken at breakfast with fresh or curdled milk, at dinner with broth or fried lard, and with milk again for supper. This sterz is also known as heizen, and takes the place of bread, not only in the Steiermark, but in Carynthia, and in many parts of the Tyrol. In the north of Italy the peasantry live chiefly on polenta, a porridge made of boiled maize. The polenta, however, is not allowed to granulate like Scotch porridge, or like the Austrian sterz, but is boiled into a solid pudding, which is cut up and portioned out with a string. It is eaten cold as often as it is hot, and is in every sense the Italian peasant's daily bread. The Roumanians are held by many scholars to be descended from a Roman colony, in other words, to be the cousins of the Italians; and, curiously enough, a variation of the polenta, called mamaliga, is the national dish of Roumania. The mamaliga is like the polenta in that it is made of boiled maize, but it is unlike the latter in one important respect, as the grains are not allowed to settle into a solid mass, but are kept distinct, after the fashion of oatmeal porridge.—*Food.*

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The Fly Plague.—The long spell of hot weather we have experienced has not been without its disadvantages, and amongst these must be mentioned the annoyance caused by flies to both man and beast. Horses have more especially suffered, and their sufferings have been rendered all the more general and acute from the stupid and useless mutilation to which they are subjected in being "docked." This consists in the very painful operation of chopping off more or less of their tail, cutting through the coccygeal bones, muscles, nerves, and blood-vessels, and for ever after depriving the horse of one of its beauties and most useful defences against insects, to whose attacks it is very much exposed. This fashionable mutilation, the result of a depraved taste, has now become so common that, whereas a few years ago very few horses had to undergo it, there is scarcely one to be found which has not had one-half or two-thirds of its tail lopped off by the horse-dealer, roadside farrier, or veterinary surgeon. Consequently, the agony endured from the operation is trifling in comparison with that which horses experience from the flies, against which they have no protection when subjected to this unreasonable and damaging curtailment. Various expedients have been resorted to, with the view of driving away these troublesome insects, and some of them are worth a trial, as they are likely to be successful. Paraffin, petroleum, or a strong solution of carbolic acid or carbolised oil, may be applied to the hairs of the forelock, mane, and tail, or bits of sponge or woollen cloth saturated with these and attached to the bridle, collar, and crupper strap may be used. A solution of Macdougall's sheep dip answers well when sponged over the skin, as does also Jey's disinfecting fluid. People who ride or drive, or who commiserate their horses when in fly-haunted stables, might advantageously resort to something of this kind should the creatures suffer from the folly of fashion in being deprived of their tails.—*Lancet.*

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Health at School.—School-hygiene deals, among other matters, with the structural arrangements of schools, the conditions of air space and ventilation under which children in all schools pass their days, and in many their nights; school-furniture and lighting, in their relations to posture and eyesight; sanitary arrangements which, if defective, may be, and often have proved to be, the cause of disease; the dietaries of children in boarding-schools, and indirectly of the day-scholars in public elementary ones; the hours of work in school and at home; the due alternation of study and play; the entire field of physical education, no less important than, and indeed essential to the proper education of the mental faculties; recreation games and gymnastics in relation to the development of the body, and, though more remotely, to the formation of character; the effects of over-pressure on teachers and taught; the nature and amount of punishments; and the prevention of infectious diseases in boarding-schools, with the means for their suppression when introduced, as well as the measures to be adopted for avoiding the spread of epidemics among the children of the poor, through their association in public elementary schools. It does seem almost incredible that, throughout our educational system, these multifarious and all-important questions are either totally ignored or are left to the discretion of persons who, however well meaning, are without the necessary scientific and medical knowledge; that, in many of our largest public schools, the medical man is supposed to have no higher duty than the administration of drugs, and is not even consulted as to the prevention of diseases of an infectious character; and that, while the teaching of the four million children of the working-classes is watched by an army of inspectors in the interests of the Education and the Science and Art Departments, the School Boards, and Diocesan Boards, no provision whatever is made for the medical inspection of schools.—*British Medical Journal.*

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To Remove Foreign Bodies from the Eye.—Before resorting to any metallic instrument for this purpose, Dr. C. D. Agnew (*American Practitioner*, May, 1884), would advise you to use an instrument made in the following manner:—Take a splinter of soft wood, pine or cedar, and whittle it into the shape of a probe, making it about the length of an ordinary dressing probe. Then take a small, loose flock of cotton, and, laying it upon your forefinger, place the pointed end of the stick in the centre of it. Then turn the flock of cotton over the end of the stick, winding it round and round, so as to make it adhere firmly. If you will look at the end of such a probe with a two-inch lens, you will see that it is quite rough, the fibres of cotton making a file-like extremity, in the midst of which are little interstices. As the material is soft, it will do no harm to the cornea when brushed over its surface. When ready to remove the foreign body, have the patient rest his head against your chest, draw the upper lid up with the forefinger of your left hand, and press the lower lid down with the middle finger, and then delicately sweep the surface in which the foreign body is embedded, with the end of the cotton probe. When the foreign body is lodged in the centre of the cornea, it is most important not to break up the external elastic lamina; for if you do, opacity may follow, and the slightest opacity in the centre of the cornea will cause a serious diminution in the sharpness of vision.

The Family Circle

"The child is father of the man."—*Wordsworth.*
"In bringing up a child, think of its old age."—*Joubert.*

FACTS WORTH KNOWING AROUND THE LAUNDRY.

That by adding two parts of cream of tartar to one part oxalic acid ground fine and kept dry, in a bottle, you will find, by applying a little of the powder to rust stains while the article is wet, that the result is much quicker and better. Wash out in clear warm water to prevent injury to the goods.

That cold rain water and soap will take out machine-grease, where other means would not be advisable on account of colours running, &c.

That turpentine in small quantities may be used in boiling white goods to a great advantage, as it improves the colour, and the boiling drives off all odour. Resin in soap is quite another thing; it injures and discolours some goods, and shrinks woollens. Soapmen argue that on account of the turpentine in the resin it assists in the washing. It is used for a filler and to make the soap hard and cheap. It is a fraud on the consumer.

That kerosene will soften leather belts or boots that have become hard from exposure or use around the wash-room. Good for the harness when hard from rain or dampness. Wash with warm water, then grease with good animal oil or dressing like the following.

That the government harness-dressing is as follows:—One gallon of neatsfoot oil, two pounds of Bayberry tallow, two pounds beeswax, two pounds of beef tallow. Put the above in a pan over a moderate fire. When thoroughly dissolved add two quarts of castor oil, then while on the fire stir in one ounce of lampblack. Mix well and strain through a fine cloth to remove sediment. Let cool, and you have as fine a dressing for harness or leather of any kind as can be had.

That baking soda gives instant relief to a burn or scald. Applied either dry or wet to the burned part *immediately*, the sense of relief is magical. It seems to withdraw the heat and with it the pain. Keep it in the ironing-room.

That Javelle water, often met with in works or articles on cleaning and dying, is made of one gallon of water and four pounds of ordinary washing soda. Boil for five or ten minutes, then add one pound of chloride of lime. Let cool, and keep corked in a jug or tight vessel.

That when acid has been dropped on any article of clothing, liquid ammonia will kill the acid, and then by applying chloroform you will restore the colour in most cases.

That "cyanide of potassium" will remove all indelible inks whose base is nitrate of silver. Being a deadly poison, it will be hard to get from the druggist in most cities. Turpentine or alcohol rubbed in hot removes the new inks, using soda and soap freely in hot water afterward.

International Health Exhibition. — Eastern Gallery. — Perfect Daylight.—Chappuis' reflectors supersede gas in daytime and improve natural daylight. They can be adapted to any window, fanlight, skylight, area light, &c., wherever natural light is impeded owing to the bad construction of premises or the proximity of walls or buildings. They will be found to promote health, comfort, and economy. They can also be used as screens or blinds, and at the same time they act as daylight diffusers. More than 30,000 are in use in London alone. For prospectuses address two stamps to (H.) Chappuis, patentee and manufacturer, 69, Fleet-street.—[Advt.]

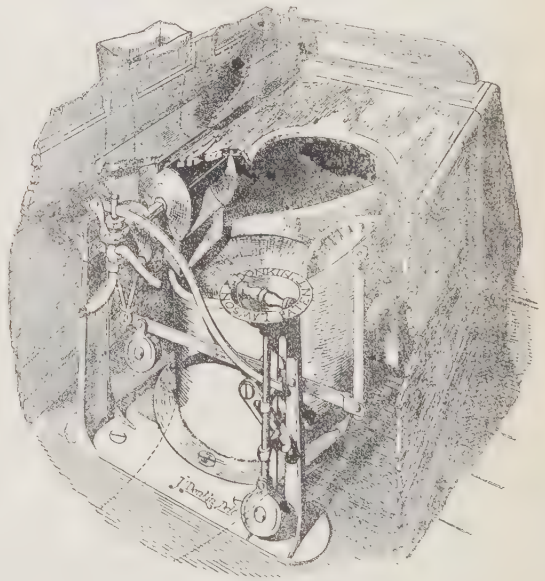
Sanitary Appliances, Etc.

LAWSON & DONKIN'S PATENT EARTH AND WATER-CLOSET.

Among all the range of subjects relating to health reform, it would perhaps be difficult to find one more urgent or of such deep and general importance as the science of drainage is now felt to be—in other words, such a disposal of our domestic excreta as shall at once recommend itself as natural, sanitary, and complete. In the study of this question, as in all others, there are fundamental principles which should govern and direct all practical action connected with it, and it would be scarcely necessary to insist on so evident a statement, except in cases where experience has proved the proper course to have been departed from and another adopted in its place to the subsequent detriment of the system and community. It is often said "that a thing well begun is already half done," and it was never truer than when brought to bear on the problems that lie on the very threshold of this sewage question.

The first to claim consideration is the mixed nature of the excreta, and the second the kind of medium to select to act as a mode of conveyance for each kind that we have to deal with, and although it appears thus in a condensed form, the real issues of the whole question are practically confined within these limits, and centre round this chief point or vehicle to be selected.

Everywhere water appeared to offer the most seductive facilities for cleanliness and conveyance, and it is not surprising that as the great proportion of refuse from our house assumes a fluid form that water was the vehicle adopted by the general consent of the sanitary authorities. So well adapted to the purpose did it appear, and so economical and easy of management, that it was made to fulfil more than its true sphere of duties, and serve the same purpose in our closets for solids and liquids alike. No other medium could compare with it for similar advantages, and hence the reasons that led to the first false step in our present system of sewage; and once made, it was practically impossible to recover it.

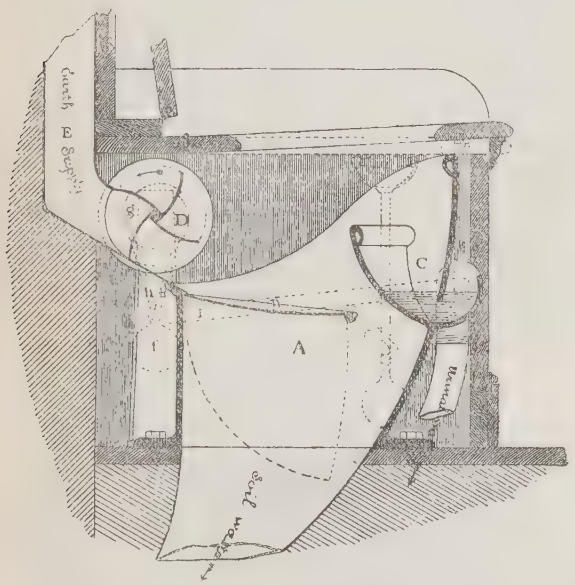


Mechanism of the Closet.

It is, of course, an easy matter for one pipe to end in a cesspool, the contents of the latter to be disposed of periodically on the soil, but what we have to contend with in communities is the pipe that grows to a drain, the drain to a sewer, the sewer to a culvert, the culvert to a subterranean tunnel, that ends nobody wants to know where in an ocean of filth and a hotbed of disease. Again, how few traps are there proof against sudden alternations of atmospheric pressure, and even supposing, for the sake of argument, they may arrive at infallibility in this respect, the evil is only one step removed. We only succeed in preventing the gas entering our houses in proportion as we give it freedom in our streets, and so the evil is as rampant as ever. It is impossible to overcome or retrieve it; you have sown the wind and you reap the whirlwind; and it is also impossible to underrate the moral to which it steadily and con-

clusively points, *i.e.*, never allow refuse matter to pollute ten, twenty, thirty, or even a hundred times its own bulk of pure water for the mere purpose of conveyance. The thing speaks for itself as radically wrong; for ounces that are conveyed gallons are polluted, and sooner or later it will be felt and so acknowledged. That earth or other dry equivalent is the only natural absorbent for the fæces is everywhere conceded, and it is only in returning to natural principles that our chance of safety lies. But we have solid as well as fluid matter to deal with, and under certain circumstances liquids will pollute earth as much as solids will pollute water, and it is therefore in the separation of the two that the only true solution of the difficulty is to be found. The error lies in the first step in allowing the two kinds of excreta to become mixed at all, and so preparing the way for the generation of gases as baneful as they are fatal. Truly the surest prevention to the infection by sewer-gas is not to make it, and the only true method is to keep fæces and urine distinct, and deal with each separately through its own legitimate medium, *i.e.*, dry earth or other carbonised granular for the solid portion and water only for the fluid, allowing nothing but fluid proper to enter the drain, and none whatever to touch the earth.

These, therefore, represent the main features of the system which the inventors of the Combination Closet are endeavouring to



Sectional View of Closet.

promote; and it will be seen by reference to the woodcut that the apparatus they introduce is designed with a special view to these results. They are obtained, in the first instance, by a basin (A) so divided as to form a urinal in the front (C) and an earth-pan (B) in the rear, and in such proportion that the former must of necessity, though difficult to credit without experience, receive all the fluid, and the latter all the solid excreta, irrespective of sex or circumstances, water, at the same time, being supplied to the urinal, as well as earth to the pan.

These supplies are regulated by two valves, one of which, being similar to that of an ordinary water-closet, is brought into use by the action of the handle (the latter serving the double purpose of discharging the pan), while the second consists of an earth valve in the rear (D), which is acted on automatically by the pressure and rising of the seat. The urine may thus be either conducted to the drains (though entirely disconnected from them) or to a separate receptacle, as may be best suited to individual requirements, while the fæces are deposited in a layer of dry earth, being again covered by a similar charge, and conveyed outside to a receptacle provided for it in a perfectly harmless condition, and deprived of all noxious or disagreeable effluvia. The earth-valve (D) is extremely simple in construction and action, and consists in a four-chambered galvanised iron wheel, which delivers a charge of earth to the pan at every quarter revolution by the action of the lever under the control of the seat.

It is not, therefore, simply a modification of any of the present contrivances, but forms an essential difference in the fact of its combining the application of earth and water, and, at the same time, being capable of taking the place of the present water-closet in any class of house or position in it. It may thus be fixed at any height above the receptacle, the latter being, in most cases, outside, level with the ground, and affording ready access for constant and regular removal. We are quite prepared to hear that this question of collection and removal will constitute the first objection to the reform it proposes to effect, but we submit that when properly organised it is capable of being carried out without the slightest offence to the most sensitive person, while the expense would be more than defrayed by the value of the manure thus obtained. Some of the manufactured deodorisers will be found more efficacious than others. The granulars prepared from carbonised shale mixed with dry earth are more absorbent and more effectual than dry earth merely, and the quantity required of this agent is thereby reduced to a minimum, but it is not necessarily an essential, and a mixture of common dry earth and sifted ashes, will be found to answer almost as well. In any case a far smaller quantity will be required than in the case of ordinary earth-closets, where the fluids are allowed to mix with the earth. All sloppy messes are similarly avoided, which have hitherto formed one of the chief drawbacks attending the earth-closet system. The method of supplying the earth at the back will be seen by a glance at the illustration, a chamber (E) being provided at the back of the closet framing capable of holding about a week's supply for a family of average number, the chamber being easily accessible from the front for the purpose of replenishing from time to time, provided with a sifter, and covered with an ordinary lid. The supply of the earth, as occasion may require, being the only additional attention necessary beyond that of an ordinary water-closet, and which, given the demand, would be as readily forthcoming as any other of our daily requisites at a merely nominal cost.

But we have only to place against this, as well as the first objection attending collection, *the absolute immunity from gas and its deadly effects*, and however powerful the forces of prejudice or custom may be, the choice can ultimately tend only in one direction, viz., in favour of a closet which embodies the principles most in harmony with the laws of nature and science.

Messrs. Lawson & Donkin, therefore, claim for their apparatus that it not only combines all the essential advantages and conveniences of an ordinary water-closet, but possesses others of far more vital importance, which are unquestionably never to be obtained except in conjunction with the dry earth principle.

Our Letter : Box

"Conference [maketh] a ready man."—*Bacon.*

NOTICES TO CORRESPONDENTS.

All Communications for the Editorial Department (including specimens of Sanitary Appliances, &c.), to be addressed to "The Editor of Health," 74-76, *Great Queen-street, London, W.C. Those intended for the Publishing Office to be sent to* "The Publisher," *at the same address.*

Contributors are requested to send stamps for the return of the MSS. *in event of non-acceptance. Every care will be taken to ensure the safety of* MSS., *but the* Editor *and* Publishers *cannot hold themselves responsible for accidental loss.*

Correspondents are requested to write on one side of the paper only. The Editor *disclaims responsibility for the opinions expressed by Correspondents.*

LETTERS TO THE EDITOR.

REFORM IN MALE DRESS.

Sir,—Resuming my remarks on this topic, I may say that there has, however, until quite lately, been but little movement in private effort or by public lectures, many who could sway their great influence, did they choose to trouble themselves, coldly replying, when appealed to, "that they conformed to the costume of their day." Many of these were artists, from whom we might look so earnestly for help—that is, if the painting of pictures represents the teachings of a modern artist, and if his teaching served to demonstrate beauty, with criticisms against national defects in taste. It is questionable if a very large section of artists, reducing their powers to a mere vulgar stilt dance in art, will ever, solely by the brush and chisel, advance us to an

acquired taste for the beautiful, which, of all things else, requires advancing in this land. We first object to the hat, by its shape, so far removed from the slightest suggestiveness of being a cover or protection, with its satanic blaze and sable gloom. Gloss, however, we are told, is very respectable and genteel; and looks the acme of respectability and businesslike briskness. It, doubtless, has a vast levelling expediency, sweeping away any peculiarity of its wearer, overlooking individuality as much as possible. A most exquisite dandy and most elaborate snob are brought nearer together by its strangely levelling influence and funnel crown. It has no contours; it is a mere tube; it is expensive, awkward of conveyance, and is easily damaged by rain. How is it that this headpiece has become so general in Europe, whilst hats quite as close-fitting, with elastic brims, with independent action to the crown, helmet hats, in simple and costly materials, fur hats of every kind, straw and woven hair in varieties, all have been ruthlessly laid on one side? Are there not head-dresses enough that answered full well in the past, and for which art has recorded so much admiration from the 10th to the 16th century? and yet half a century has never radically changed the fashion of ours.

We have not to go far to find fresh faults in the neck arrangement, which, to do it justice, accords well with the hat. The collar, and coat, and shirt, most unhappily hide the spring of the neck, not sufficiently revealing the large exterior muscles. A low turn-down collar is not uncomfortable, but has the unfortunate result of spoiling all effect of ease. The diverging lines where the collar buttons, and the paste-board covered tie meet, the gigantic scarf-pin, with the snipped lapel, are all unbecomingly arranged for the neck of man. The coat comes next in order of demerit; the strong characteristic is its onesidedness, being always longer in the rear, with useless fold-less tails, that heat or protect at least the most unsensitive part of the body. It is full of pockets, which, if filled at any time, would give indescribable deformity when the coat was buttoned. The tails too obliterate the movement of the thighs when in action of walking, and are comic indeed when running. The action of the loins and thighs through loose drapery is, on the contrary, graceful in the extreme, as in almost all those dresses we would restore as models in good cutting. The quaint beauty, cloaks that were invariably used of length enough to give shelter to the long tights or hose, and hung from the shoulder, were far preferable, in my opinion, to these modern vestments. We do not disapprove the Norfolk coat, with girdle. Here is a coat that covers no more than a quarter of the thigh, with some emphasis given to the hips and trunk. It is the frock coat, and the world-famous "claw-hammer" or "swallow-tail," that have to be specially engaged in this attack. These are dotted in the rear with two buttons over the tails, lapelled, folded stiffly and formally across, and padded to excess, and in the wrong places in the frock or walking-coat of "the frock" there is little tracing left. A pouting pocket exists on the left breast for the handkerchief, and is only fastened or buttoned by the top or first button, falling back and revealing a waistcoat, adorned usually by a loop-up chain for watch, positively the only piece of metal ornament in the whole outfit. The sum total effect is not to be surpassed for barrenness and want of elegance, being absolutely destructive to the leading lines of the figure. These coats have clothed us from our boyhood up, and the finest forms have, we know, been buried in them. If your patience is not exhausted, I shall conclude my criticisms in your next.—Yours, &c. REFORMER.

THE REVERSIBLE BOOT.

SIR,—I could not expect Dr. Ellis to discuss "healthy boots" with me, but I object to the reason he gives.

As a matter of fact, boots are never made the shape of the feet. Let any one with a fleshy foot stand upright and place his foot firmly upon the ground, and then imagine a model taken of the foot in that position and his boots made from it; he will then become aware of the difference between foot and boot, a difference, I contend, as shown in my principle of construction, is all in favour of health and comfort. Whether it arises from a false taste or not, I am certain that very few people would wear boots constructed as Dr. Ellis contends they should be, and I am of opinion they would not be comfortable if they did. A limited restriction to the spreading tendency of the feet appears to me necessary to the comfort of walking, but the restriction must be uniform to both sides of the foot. The evil of the present style of making boots is that restriction takes place on the inside of the boot only, consequently the weight of the body throws the foot on the outside, making still further demands for an increased bend. A baby's foot is straight both inside and outside, as will be clearly seen if marked with a proper instrument, instead of the delusive way of pencilling the so-called sole of the foot.—Yours truly, JNO. BRANCH.

QUERIES AND ANSWERS.

We would direct the attention of our correspondents to the fact that, owing to the necessity for sending HEALTH to press early in the week, answers to queries cannot, as a rule, appear in the succeeding number of the journal. Every effort is made to secure punctuality in the replies, but we must ask the occasional indulgence of our readers, owing to the large amount of correspondence, which requires assortment and reply.

We must also request correspondents who write enclosing stamps for copies of HEALTH, to address their inquiries to the Publisher, *and not to the Editor.*

GENERAL.

BIRCHIN.—Too long for our columns; if condensed might be suitable.

ALLOA LAD.—We do not know the substance. Can you say where you saw the reference?

A. K.—The tendency, we think, is rather the other way.

JAMES ORMOND.—Read Corfield's "Health" (Kegan Paul & Co). Dr. Andrew Wilson's "Health Manual" is in the press. It will be published by Messrs. Longmans & Co.

A BAIN.—Yes; Erichsen's is a standard book. There is a good chapter on the antiseptic system in Spence's "Surgery" (A. & C. Black). See a paper in the *Edinburgh Medical Journal* for August, by Mr. Chiene.

K. T. O.—1. Bournemouth, decidedly. 2. No. 3. Not at present.

CABBY.—You were quite right; a horse has only one fully developed toe (the third) on each foot, the "splints" being the rudiments of the second and fourth toes.

GEORGE CATON.—We fancy the pay ranges from £10 to £20 per month. It varies in different lines.

TOM B.—See HEALTH No. 68 for an article which will interest you.

A. L. S.—You did not make a complete circuit, as shown in your diagram. Connect A and B.

CERCLE.—Syme's experiments on the periosteum decided the point.

T. BALL.—Read Romanes' "Animal Intelligence" (Kegan Paul & Co).

ANCES.—We have used a Remington type-writer for some years, and have not found it liable to get out of order. We find it a pleasant relief from pen-work.

PAUL.—The case occurred in Edinburgh, and was tried at the High Court of Justiciary there about 1857 or so. Reports of the trial are scarce.

TRICYCLE REPLIES.—INTENDING. The Imperial Club or Cheylesmore; the Rover and the Burdess. The Meteor Sociable spoken of as ridden by the Editor of HEALTH has 40-inch wheels. As a hill-climber, it goes steadily, and requires little exertion when two riders work it. A front-steerer and, of course, a double-driver are to be preferred.—MARK TWAIN. Wear a light jersey, and try Fuller's Earth as an application. See that your clothes fit well.—A. N. D. A saddle, certainly.—GLASGOW. An excellent machine. There are "Convertibles" and "Folders" which will suit you. See the maker's list.—NELLIE M. No reason why you should not adopt the dress. It is as comfortable and as comely as any other.—PETER CARD. There is no fear of such a result. We should rather think the contrary result might accrue from the exercise.—THOMAS AULD. Varicose veins, undoubtedly. Rest for a time, and give up all tricycling in your case for a period, during which you must have appropriate treatment.—CYNIA. We prefer oatmeal and water. Try Farnworth's meal, advertised in HEALTH.—C. DAVIES—The tricycle you name is one of a low-priced maker. It is a safe machine, and built on good lines, but we cannot answer for quality or workmanship. It might suit a beginner. Secondhand, it should not exceed £8 or £10 in price.

SANITARY.

T. W. O.—No remedy, we fear, save taking up the floor, asphalting, and thoroughly shutting out the damp.

YOUNG STUDENT.—1. Carbolic acid (pure) is the substance. 2. No such preparation.

ALEX. THIN.—What you describe is a health nuisance undoubtedly, but as far as we know it is one hardly indictable at law.

C. G.—There was a decision given in a similar case for the Local Board.

TEMPLE.—1. Caused by a low form of fungus. 2. Carbolic acid used as a caustic.

Andrew Tait.—There are several methods. Clark's is that usually preferred.

W. J. B.—See the advertising columns of Health for notices of the carbon-block filters. Maignen's *Filtre Rapide* and Doulton's Filters are of the kind you name. In another class, the Spongy Iron Filter can be recommended to you.

MEDICAL.

L. J. M.—1. Are your teeth in good repair? What you complain of often arises from bad teeth. Consult a dentist. 2. Gargle the throat with a weak solution of sulphur*ous* (not sulphuric) acid and water—say half a teaspoonful of the acid to a tumbler of water. 3. Try cod-liver oil or cod oil emulsion—a tablespoonful after meals. If not better, write again. Is your chest weak, and is there any cough?

Marian.—See advice to "L. J. M." above. The cod-liver oil should be taken by you as a strengthening measure, or the cod-liver oil cream of Mr. Thomson, chemist, Dublin-street, Edinburgh, might be tried. Clothe warmly, and avoid chills. If not improved, write again.

H. W. M.—Avoid stimulating foods; don't eat suppers or take fluids late at night; avoid sleeping on your back. See that your general health is good; avoid constipation; and attend to the ventilation of your bedroom. If not bettered, you must send full statement of health and habits.

Edina.—See and follow advice to "Dejected" in Health No. 72.

Studious Jack.—By all means continue the baths, they will do you good. You must, of course, bear in mind that you cannot "burn the candle at both ends," with severe study on the one hand and an apparent want of tone on the other. Regulate your health first, and avoid overstrain, which is fatal to all happiness, either mental or physical. Take in the mornings, occasionally, a little Lamplough's Pyretic Saline as a corrective to constipation, and make fruits and vegetables part of your diet. Food to be very light. Rest, *after* meals, is essential. Press out the "black-heads" in the skin, then sponge the face (after washing with Pears' soap and tepid water) with Eau de Cologne or weak spirits and water. A pill containing two grains sulphate of quinine might be taken an hour before dinner for a time.

Whales.—In such a case, we counsel you to avoid all tampering with medicines prepared and sold as is that you name. The nervous affection from which the person suffers, is probably of too grave a character to be neglected, and medical advice should be had at once. In such cases, to demand appropriate treatment, prescribed by a physician, and its effects watched by him, is the only legitimate course you can pursue. All secret medicines vaunted as cures for such disorders should be eschewed.

Mac.—Any druggist will supply the cordial or other preparations of Cascara Bark.

Nomen.—Don't use a small comb or a hard brush. Wash the head with Borax solution, or with water in which a small piece of Quillai Bark has been soaked so as to produce a lather.

George.—We should advise you to begin to accustom yourself to take cod-liver oil or cod oil emulsion after meals. Live on soups, fish, milk, light puddings, &c., and take a little Montserrat Lime Juice as a cooling drink in the warm weather. You require no special treatment, beyond care in diet and avoidance of chill. The gargle of sulphurous (not sulphuric) acid recommended to "L. J. M." above, might do you good.

Peter Lane.—See and follow advice to "Richmond Hill" in Health No. 72.

B. J. O.—See advice to "Copia" in Health No. 71.

Alex. W.—Nothing to cause alarm. Rest for a time, and take Pepsine with meals.

Sherb.—1. What evidence have you of the "worm" theory? You yourself alone can verify your ideas. Meanwhile, exercise great cleanliness; wash night and morning with Samphire Soap (Field's) and tepid water, and apply pure Vaseline to the parts. A dose or two of Pyretic Saline might aid your cure. Avoid heating foods and stimulants. 2. Your suggestion is a good one, but impracticable, inasmuch as what may apply to one case may not apply to other cases, even if the latter appear to be of allied character. Each is considered carefully on its own merits. If not bettered, write again.

T. G. B.—Take the tonic recommended to "Richmond Hill" in No. 72 Health, for a time. The change of air will do good, but you want a more bracing locality.

Albion Hyde.—Causes differ in different individuals. Chills, after being overheated, often produce what you name. Food should be light, and all stimulants should be avoided. Take, for a time, the following powder: sulphide of lime twenty-four grains, sugar of milk half an ounce; mix and keep in a stoppered bottle, and take as much of the powder as will cover a sixpence, thrice daily.

J. B. G. (Grahamston.)—1. We do not know either the work or treatment to which you refer. The book is certainly not a familiar one. Is it not an old production? 2. We should not advise you to inhale the acid continually or frequently; the practice might cause unpleasant symptoms. Germicides act on "germs" and not on the blood, simply because they do not come in contact with the latter fluid.

Reformer.—Don't make too much of your symptoms; and, above all, exercise mental control, and alter your habits. All treatment is useless unless you so exert your mental strength. What you require is only a cold bath each morning, sleeping on a hard mattress, plenty of open-air exercise, and avoidance of suppers and fluids late at night. Don't sleep on your back. Occupy your mind with healthy thoughts; and for a time take the tonic you name, a teaspoonful in a wineglass of water, twice daily, an hour before food.

A Stitch in Time.—You have been treated properly enough. It may be necessary to continue the treatment a little longer, when probably you should have iodide of potass given you alternately with the present medicine. You seem to be in good hands. Look well to your general health, avoid stimulants, and clothe warmly. Glad to advise further, if desired.

R. R.—We do not know the composition of the pills named, and we should not advise you to make a practise or habit of taking these (or any other) pills continually. Regulate your diet. Rest after meals, and take Pepsine with your food, and thus correct any tendency to indigestion which exists.

Arthur Harvey.—You require a regulated system of gymnastics adapted for such cases. If you could visit the Zander Institute (see advertisement in Health), Soho-square, London, W., you would benefit greatly from the mechanical exercises there given. They have cured many such cases as yours, and we advise you to visit the Institute. The cold-water douche and rubbing, or the hot-and-cold-water douche, played alternately on the part, might aid you.

T. A. Hill.—You are unduly excited and highly nervous. There is no need for alarm, or for you to be in the least apprehensive of your future. Read and follow perseveringly the instructions given to "Copia" in Health No. 71, and you will get quite well. Be cheerful, above all else. Occupy your mind with cheerful and healthy thoughts, and don't grow morbid. Rest assured your case is a very common one, and that it is eminently curable by the simple means indicated. Glad to advise again, if necessary.

Rickets.—Rest is required; moderate out-door exercise; attention to the general health; food to include porridge and milk, whole-meal bread, &c., and a little of Parrish's Chemical Food (to be had of any druggist) to be taken thrice daily in water. Try also cold or tepid baths, in which Tidman's Sea Salt has been dissolved.

S. Smith.—What you name is perfectly natural in all healthy persons, and is to be regarded as a sign of health. You require, therefore, no treatment whatever. Only quacks will persuade you differently. Try cold sponging each morning, and take moderate open-air exercise.

Singleton.—About two grains or so; not more.

B. Gould.—Try the first-named; the second is not capable of being personally applied.

Extant.—1. A simple form of skin-eruption. Simply avoid stimulants and eat fruits. 2. Try bathing the feet in a solution of boracic acid and water.

Antiquary.—1. We have no knowledge of the person you name, but the mere sound of the system he professes is enough to stamp him as certainly favouring quackery. We have seen details of the system in question, and regard it as an untenable system. 2. Not that we have ever heard of. Why do you ask the question? We have never heard the neighbourhood credited with developing goître.

Neurology.—You are troubling yourself quite needlessly. There is not a particle of evidence in your case which tends to support your fear of consumption. You simply require rest, cheerful society, and a nerve-tonic such as Fellows' Syrup of the Hypophosphites—a teaspoonful thrice daily in water an hour before meals. Continue the cold sponging each morning. Rest and pure air are the sheet-anchors of your cure—particularly rest from the exercise you name for a lengthened period. Don't attach any importance to your former habits. You will get quite well by attention to diet, avoidance of constipation, and the tonic above prescribed.

J. T. (Liverpool).—1. Jellyfishes (certain kinds) sting very severely. The treatment is a cooling lotion, and dressing the part with pure oil or Vaseline. 2. A gramme in the metric system equals nearly 15½ grains English. If you try thirty-one grains of the bicarbonate of soda, it will come as near your quantity as you need go.

[*Continued on page* 336.

CALVERT'S CARBOLIC PREPARATIONS.

Awarded 3 Gold Medals, Calcutta International Exhibition, and Gold Medal, International Exhibition, Crystal Palace, 1884, and 27 other Prize Awards.

CALVERT'S DOMESTIC CARBOLIC VAPORISER.

For the Purification of the Air in Sick-Rooms. Price 1s. 6d.

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A Fluid Dentifrice, prepared with Calvert's No. 1 Carbolic Acid (Phenol), preserves the teeth, arrests decay and prevents Toothache. Price 1s. 6d. and 2s. 6d.

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SCOTT'S MIDLOTHIAN OAT FLOUR

Is Unequalled as the Most Wholesome and Nutritious Food

FOR INFANTS AND INVALIDS.

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C. Y.—Try sponging the wood with a solution of carbolic acid and water—one of the acid to say twenty or thirty water.

Thomas Browne.—1. No soap will protect against fever-infection, simply because infection is not inhaled by the skin, but by the lungs or into the stomach. Don't change the soap you are using. 2. There are no further "rules" to mention; we quoted all that were given.

C. H. Thomas.—Take the cordial first thing in the morning, diluted, say, five or six times its bulk with water, and before meals—say about an hour. For dreaming, try the effect of taking a little food before retiring to rest—say a biscuit and a little milk.

Veritas.—1. *Epidemic* diseases are those that spread through a district, country, or continent; *endemics* are those which are confined to a district, and propagated therein by conditions peculiar to the locality; "*zymotics*" are really the germ-diseases of modern life (the term is derived from the Greek for "yeast"), and such diseases seem to depend on the presence of some germ which multiplies in the body. They are contagious, of course. 2. The zymotic diseases are:—Small-pox, chicken-pox, typhus, typhoid, scarlet-fever, measles, and whooping-cough. Mumps and the "plague" should also be included in the list.

E. F.—No: the affair is a quack concern. It is quackery to advertise a "free" recipe, the ingredients of which are not readily procurable, the names of which are couched in dog-Latin (which few understand), and the precious materials of which are offered at a price the exorbitant nature of which clearly indicates the nature of the transaction. Keep your money in your pocket, if you are wise.

Chronic.—Look through Messrs. Churchill's (of New Burlington-street, London, W.) list, or that of Mr. Lewis, of Gower-street, and select any manual of skin diseases there mentioned. You are certain to find the affection described therein. The disease is really incurable. The treatment is warm baths, followed by inunction with almond oil, or glycerine and water. Cod-liver oil should be taken internally.

E. S. Z.—1. No; one pipe a day will do no harm. 2. Yes; the treatment will effect a cure if persevered in. You might aid matters by using one of the Harness Battery Belts advertised in Health. Pulvermacher's is also an excellent belt. We should recommend you to place your reliance on the treatment recommended.

Scotia.—Try the tonic recommended to "Neurology" above. It will do you much good. See that your food is light and nutritious, and take plenty of open-air exercise. Glad to assist further, if need be.

H. B. L.—Try the effect of taking fifteen grains bromide of potass in a wineglass of water when the symptoms trouble you. Attend to state of digestive system, and avoid constipation, above all else.

Anxious Inquirer.—Rest after food, and take the following mixture:—Carbonate of ammonia, one drachm; bicarbonate of potass, a drachm and a-half; infusion of chiretta, six ounces. A tablespoonful to be taken thrice daily before meals.

A. B. G.—There is no other remedy, we fear. A surgical operation is the only sure chance of relief.

Thomas Gall.—"Addison's disease" is the affection you mean. It was so named from its discoverer, who associated the bronzing of the skin seen in it with disease of the supra-renal bodies, which are two small bodies lying one above each kidney.

Belt.—Drink hot water to which bicarbonate of soda has been added—say one drachm to the pint of water. This is useful in relieving the paroxysm of pain in the case of gall-stones. Leeching may afford relief. Medical advice is highly necessary. The mineral waters which may be taken are Vichy, Carlsbad, or Kissingen.

Hope.—Try Bragg's Charcoal Biscuits for the acidity and the correction of the nausea. Black sugar will often cure heartburn. Eating an apple sometimes relieves it.

Gilbert.—No such preparation is known. It is at least unknown in this country to druggists. We have made every inquiry on your behalf.

Taxus.—Try twenty drops Collis-Browne's Chlorodyne in a little water. This will check premonitory symptoms.

Interested One.—Yes, nitrite of amyl is inhaled in the disease known as *angina pectoris*, which, by the way, is a tolerably rare disease. Two or three drops are sprinkled on a handkerchief and inhaled.

G. A. J.—No danger. Don't be morbid. See advice to "Reformer," in present number of Health, and take the tonic above recommended to "Neurology."

Sinclair.—Use a weak injection (one to thirty or forty water) of Condy's Fluid for a time, twice or thrice daily. Rest is essential; and a little Lamplough's Pyretic Saline each morning should also be taken for a time by way of correcting constipation.

Andrew Sime.—We should say all fear of infection is now past. Use sulphur fumigation by way of making assurance doubly sure.

Henry Black.—Try the effect of hot salt-baths, and of administering occasionally fifteen grains bromide of potash in a wineglass of water at bedtime. If not relieved by these measures, we should advise you to consult a physician, as, if the symptoms continue such persistence shows that a medical examination is necessary.

Euelpides.—No treatment is available except such as is of surgical nature. All other treatment is merely palliative.

Jacobus.—Try applying aromatic vinegar carefully, and keeping the surfaces separate by means of cotton wool. 2. Wash the feet frequently with warm water, in which boracic acid has been dissolved.

Charles Crabon.—Eat fruit and vegetables, and make these part of your ordinary food—stewed plums, apples, oranges, &c. Eat also whole-meal bread, and avoid tea and coffee. A little Æsculap water taken for a time in the mornings would also help you.

Wanderer.—See and follow the advice given to "Reformer" in present number of Health. So long as you continue to abuse alcoholic liquors you cannot expect to be healthy in any sense. Become a teetotaller if you cannot keep on the side of strict moderation; otherwise, you will never recover your lost tone. Food to be light, but nourishing.

Eastwell.—The lotion you name might do good; but we should recommend you to try the lime powders prescribed to "Albion Hyde" in present number of Health. You should avoid all food of a stimulating character; tea, coffee, and alcohol should also be cut out of the list of your liquors—for a time, at least.

W. Tyldesley.—The case you name is really one for a careful medical examination. Without this, no certainty of cure can be affirmed. We advise your friend to undergo a thorough examination at the hands of a competent physician. All other remedies are useless, considering the nature of the accident, and the peculiarity of his symptoms. He might benefit, probably, from taking fifteen grains bromide of potass in a wineglass of water occasionally.

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HEALTH

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, SEPT. 5, 1884.*

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Notes by the Way

"Health is the foundation of all our physical happiness."—*Herder.*

As the autumnal season approaches, lecture arrangements are beginning to be completed, and this form of public instruction once again comes to the front in the list of educational movements. Time was when the "popular lecture" was only another name for an essay on some literary subject, and when its aims and nature were both underrated and undeveloped. Nowadays the popular lecture is a really great institution, and has been made the means of conveying sound instruction in every branch of science to the masses. The first names, not in science alone, but in literature and art as well, are to be found represented in the lecture programmes of institutes all over the country, and it is gratifying to think that there are thousands who annually hear the great discoveries of the age, treated by men known and famed for their powers of exposition and for their accurate summary of the facts and laws of the wonderful world in which we dwell. When our Tyndalls, Huxleys, Arnolds, Proctors, and the like, are found eager and willing to address the multitudes, it appears that the popular lecture movement, after all, not only needs no defence, but year by year grows in importance and in utility to the people.

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Naturally, the topic of health and sanitary science falls to be included in the list of subjects which can be treated with advantage from the lecture-platform. Ambulance and health lectures have, for some years, been successfully given throughout the country under the auspices of various educational and allied bodies, and the list of lecturers is increased yearly by the addition of names which, in themselves, are guarantees for the solidity and accuracy of the information dispensed. We are gratified to learn that Dr. Pope is again to the fore, with an attractive programme of health lectures for the coming winter. His services, in connection with the National Health Society have alone been of very distinguished kind. The trustees of the late George Combe have again arranged for a yearly campaign of lectures on physiology and health, Dr. Andrew Wilson being the "Combe Lecturer," as in previous years.

The new towns selected for the "Combe Lectures" in Scotland this year, are Wishaw, Selkirk, Peebles, and Haddington. Dr. Wilson is also credited by the Combe Trustees with the delivery of health lectures (supplementary to last year's courses given in these towns) in Alloa and Dalkeith. It is probable that Paisley will again have a course of health-lectures delivered by Dr. Wilson; the arrangements for these lectures being carried out through the munificence of Mr. James Coats, jun., of Paisley, who last year provided a series of lectures on physiology for his town. Arrangements are also completed for lectures by Dr. Wilson in Greenock, under the auspices of the Philosophical Society of that town; and in London, Dr. Wilson is to lecture in March, 1885, at the Birkbeck Institute, Chancery-lane. A lecture is also arranged for, by him, in the course of the Edinburgh Literary Institute. While these more personal labours are arranged for, the various Health Societies are well to the front in their districts with attractive programmes. In Edinburgh, we hear of a course of lectures which falls to be delivered under the auspices of the "Health Society" of that city; while in Manchester and elsewhere, we believe, the successes of previous years in this direction are to be repeated. Altogether, the educational prospect for the coming year is cheering in the extreme.

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We hear of certain interesting events in the tricycle world as we write. Messrs. Starley & Sutton have invented a "Coventry Chair," consisting (as may be seen by a reference to our advertising pages) of an invalid chair in front and a tricycle behind. This machine, which is likely, we should think, to completely revolutionise the ancient "Bath Chair," travelled 17¼ miles in 2 hours 16 minutes from Coventry to Birmingham—the actual time being 2 hours 5 minutes. The return journey to Coventry occupied the same time; the whole journey, including stoppages, being under 4¾ hours, and the average travelling pace over 8 miles per hour. The "Coventry Chair" appears to us capable of opening up an entirely new field of tricycling activity; and the cabmen had better look to their laurels and interest in these days of human enterprise in the matter of self-propulsion. We can imagine no more enjoyable exercise for any convalescent or invalid, able to take exercise at all, than to be propelled easily, smoothly, and swiftly in the "Coventry Chair."

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We have been making trial recently of the new Central Driver "Imperial Club" tricycle, made by the Coventry Machinists' Company (of 15 and 16, Holborn Viaduct, London, E.C.); and, although our trials have not yet been of sufficiently extensive kind, to warrant us in pronouncing a final judgment, we may say that the machine in question appears to afford promise of being a capital roadster and a most trustworthy steed. Intelligence comes to hand that Mr. Nixon, of the London Tricycle Club, completed his journey from Land's End to John o' Groats (865 miles) in eight and a half days, on an "Imperial Club," beating all previous records by five and a half days. It speaks well for the machine in question, that it is reported at the close of its journey to have been in as thorough order as when it started. Truly, the tricycle may be regarded as having placed the powers of the human muscles in a light hitherto undreamt of by the most sanguine of physiological inquirers.

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A correspondence has recently been conducted in the pages of a contemporary regarding the composition of

honey. Under the title of "The Analyst in the Honey-Pot," Mr. Otto Hehner tells us that out of forty-two samples of honey (twenty-six English, nine American, four Swiss, two French, and one Transylvanian) obtained from retail dealers, twenty-four of the English specimens were genuine, while two samples (which Mr. Hehner believed to be American in nature, though sold as English) were adulterated. "Of the nine American and Californian samples," says the analyst, "seven were adulterated; while of the four Swiss samples not a single one was genuine. The two French and Transylvanian samples were pure."

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The adulteration of honey seems to offer a parallel case to that manufacture of wooden nutmegs for which our Transatlantic cousins have been proverbially noted. Art does not improve upon nature in such a case. The honey-adulterations consisted of "corn-syrup," a product made by acting on maize or rice starch with sulphuric acid. In one case "inverted sugar" was added to the honey, such sugar being simply cane-sugar acted upon by the acid just named. The price paid for honey, Mr. Hehner tells us, is no criterion of its genuine character. Some of his lowest-priced samples were pure; others sold at 1s. 3d. per lb. were adulterated. British honey he recommends as pure. "Californian Honey Dew," the "Finest Prepared Swiss Table Honey," and other products known by high-sounding names, he advises should be eschewed.

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Most readers know that the sewing-machine has been credited with producing serious ailments in those accustomed to its continual use. It would appear that, as in most other matters, there is "another side" to this question. Herr Eulenberg, who is said to be a German official, has recently appeared as a defender of the machine, while a Dr. Blaschk's testimony, and that of Dr. Ohansen, may be ranked on the same side. The latter says that the use of the sewing-machine obviates the great disadvantage of hand needlework, namely, the continuous bent position of the worker. A practised machinist, he adds, does not, or as least need not, bend forward. The movements of the foot are regarded as beneficial; and certainly, as far as these motions are concerned, there seems no reason why working a sewing-machine should be injurious, any more, indeed, than tricycling.

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Additional hints, worthy the consideration of sewing-machinists, are also given. The arranging of the work is to be regarded as in no way hurtful, but as resembling gymnastic exercise in its effects. A proper chair—possibly a swing-chair is meant, or one working on a pivot—accommodating itself to the movements of the body, should be used. No tight garments are to be worn by machinists. Corsets are, of course, utterly inadmissible, if health is to be retained. Dr. Ohansen says he has not found any tendency to consumption among sewing-machine workers. On the contrary, he regards the exercise as likely to prove beneficial to weak chests. The purity of the atmosphere of work-rooms is insisted upon as an essential condition for health. Is it not likely that, after all, what the sewing-machine has been credited with producing in the way of weak chests and other ailments, is really the result of impure air, insufficient food, and other conditions of life, all too common among our working classes?

International Health Exhibition. — Eastern Gallery. — Chappuis' Reflectors for Cellars.—Factory, 69, Fleet-street.—[Advt.]

Original Essays

"Life is not to live, but to be well."—*Martial.*

SLEEP-WALKING AND RELATED CONDITIONS OF MIND.

By Dr. Andrew Wilson.

III.

The features of interest which present themselves for notice in the sleep-walking state, include the question of activity of other senses in addition to those dealt with in our paper of last week. We saw that sleep-walkers may exhibit marked differences in respect of the activity of certain senses over others, and that the degree of wakefulness of the senses also varies in different subjects. Thus, for instance, it would seem as if in certain cases hearing may be present; in other sleep-walkers, this faculty is, for the time being, in abeyance. Touch, and what may be called the "muscular sense," are, as a rule, very actively exercised in the case of the sleep-walker; and we have seen that it is the extraordinary dominance which this latter sense may assume, that accounts for the ability of the sleep-walker to traverse giddy heights, to scale precipices, and to walk safely on house-roofs—feats which, in his ordinary waking life, he would never dream of attempting to execute. In waking life, the nerve-power, so to speak, is distributed over various senses and acts. In the sleep-walker, this power is concentrated on the fulfilment of one special act. Hence his ability to exist safely under circumstances of peril and danger, such as have been already detailed.

Respecting taste, Dr. Tuke*, in his interesting volume, says that no reference to taste was given in any of the replies he received from somnambulists. But he refers us to a case of induced and spontaneous sleep-walking which occurred in Guy's Hospital in the person of a servant-girl sixteen years of age, and in which the sense of taste was deficient—at least, in so far as mistaking one substance for another was concerned. Thus tea was given for coffee, and was swallowed under the delusion that it was the latter beverage. Bread and butter, which were at first given to this patient as such, was afterwards greedily eaten for cake, on the patient being told that it represented the latter substance.

The sense of *touch* would appear, as a rule, to be acute in sleep-walkers. One of Dr. Tuke's correspondents often dreamt he was touched, with the result of the thought awakening him. Some sleep-walkers, however, may not only be touched, "but," adds Dr. Tuke, "may be carried back to bed without being aroused from their sleep." Allied to the question of touch, is that of insensibility to pain. When absorbed in acting out their dream they are non-sensitive to pain; but it is probable that varying degrees of this insensibility to pain exist.

The *range of movements* executed by the somnambulist, and the complexity of the actions he may execute, vary, as do the other phases of this condition. Dr. Tuke relates several highly interesting examples of such complexity of acts in sleep-walkers. A medical man, well known to him, when young, "would get out of bed, go to a cupboard, and select one of his toys, and present it deliberately to his family." In another case, a young gentleman "will take elaborate pains to undo the fastenings of a window, and would precipitate himself, if not prevented either by awaking in consequence

* "Sleep-walking and Hypnotism." (Messrs. J. & A. Churchill, 1884.

of the effort, or the cold air, or by being forcibly held back. A common act of his is to go down stairs, open the front door, and look into the garden, then return, and, after locking the door, get into bed. 'As far as I can make out,' he says, 'all my movements in sleep are as active as when I am awake.'" A boy, in his sleep, used to try to discover his father's razors; when found, he took them out of their case, and placed them in another situation. This case was cured by simply removing the razors, the boy returning to bed when he could not find them, and ceasing his somnambulistic practices. A boy, in his sleep, opened his bedroom window, got out, and fell to the ground below. He was lame for some months in consequence of the injury he sustained—his room was situated on the third floor—but sustained no other injury.

Accidents of a more serious character have happened to sleep-walkers, and on more than one occasion there can be little doubt the crime of murder has been committed by somnambulists, who, mistaking their bedfellows or companions for the objects of their dream-hate, have inflicted fatal injuries on their sleeping neighbours. Dr. Tuke tells us of a case in which a boy was found one night furiously shaking his bed-post, under the idea that he had got hold of Legree, the villain in "Uncle Tom's Cabin," while later on, when a student, he was startled to find the fireirons in bed beside him. The latter incident was explained by his dream that robbers were about to break into his house, and that he intended to confront them with the poker. "Substitute," says Dr. Tuke, for the bedpost, a child in the bed or room, and clearly this might easily have become a criminal case." Another case is given in which a girl aged twelve, walking in her sleep, violently assaulted, when in that condition, a schoolfellow with whom she had had a quarrel on the previous day. The assaulted girl cried out, and when assistance arrived, the culprit was found to be in a state of somnambulism. It becomes abundantly clear that this curious condition of mind is one in which responsibility for acts of violence which may be committed therein is as completely unrepresented as in the case of the deranged and raving lunatic himself.

The acts of sleep-walkers present striking contrasts and peculiarities in respect of the objects of their guests and activity during the somnambulistic state. A girl, whose family had become reduced in circumstances, had been duly impressed by her mother with the idea that she must work hard at school, and profit as much as possible by instruction, the expense of which could so ill be afforded. The mother's words evidently impressed the girl very deeply. The lessons were learned in bed in the morning, but while her sisters were diligently engaged in conning over their tasks, the girl above-named found to her surprise that she knew the lessons perfectly. Morning after morning, the same state of perfect but unknown preparation occurred; the apparent mental feat causing much thought to the parent. On one occasion, when the mother had been paying a visit, and returned home at a somewhat late hour, she was surprised to find the girl in question seated in her nightdress at the window of her bedroom, in the bright moonlight, and in a state of sound sleep. Her lesson-book was in her hand, and it was evident that, under the influence of the strong desire to make the most of her education, the girl had been roused from the quiet sleep of natural life to the activity of somnambulism.

In another case, a teacher gave a class of boys the proof of the 47th problem of Euclid's first book as an exercise. One alone succeeded in effecting the proof. "For some time," says Dr. Tuke, "he was baffled with one stage of the proof, and retired to bed with his mind full of difficulty." Late that night the teacher, in going round the bedrooms before retiring to rest, found this boy kneeling in his bed, with his face to the wall, and pointing from spot to spot, as if following a proof in a figure on a black board. He was so absorbed in his occupation that he neither noticed the light of the candle nor answered when addressed by name; in short, he was asleep. He was not disturbed, but was left still proving his problem. Next morning, before he left his bedroom, the teacher said to him: "Well, John, have you finished your proof?" His reply was, "Yes, I have. I dreamed it, and remembered my dream this morning, and got out of bed as soon as I could see, and wrote it out at the window."

Drs. Pritchard and Macnish quote a case which deserves mention here on account of the apparent completeness of the acts performed by the subject of the recital. The patient was a girl of sixteen. She exhibited a strong tendency to fall asleep early in the evening, and talked much in her slumbers. Her speech was of a coherent and rational description; and, while in this state, she repeated the occurrences of the day, and sang various airs. Later on she answered questions while in this state. She dressed the children while "dead asleep," as her mistress termed her state; and while in this condition could lay the table for breakfast. She was taken to church, and was apparently impressed by the sermon, but afterwards denied having been to church at all; although in a subsequent attack of somnambulism she repeated the text and substance of the sermon. Being ill-treated by a fellow-servant while in this state, the girl remembered nothing of the incident when she awoke, but, when in the somnambulistic state, subsequently described the occurrence to her mother.

The cases just alluded to, but more especially the latter instance, shows very clearly the essentially machine-like (or *automatic*) nature of the lower brain-centres which rule the acts of the sleep-walker. When awake the girl remembers nothing of her visit to church; the intellectual centres had no concern with the visit or with the remembrance of the sermon. But when she falls asleep once again, these lower centres, resuming control, take up the thread of the story, much as a clock which has been stopped at a given moment automatically passes in its succeeding beats to the figures which come next in order.

PUBLIC PARKS AND OPEN SPACES.

By George Howells.

EIGHTH PAPER.

The extent to which the inclosures already effected had attained attracted the attention of the Open Spaces Committee, sitting in 1865; and a feeling of discontent arose in the East of London with respect to the wholesale appropriation of forest-land, hitherto open as a place of public resort. The disaffection which those inclosures evoked first took legal form in an action at law instituted by a labouring man, named Willingale, in the assertion of his right to lop trees in the forest—a right regarded as of substantial benefit to the poor of the parish of Loughton. Shortly afterwards another suit was commenced by a small freeholder. These suits were the means of obtaining temporary protection for about 1,000 acres of the forest-land, and they paved the way for the more thorough investigation into the legal status of the forest, and of the claims of lords of the manors and others asserting the right of inclosure. But for those earlier efforts, a great part of the forest might have been lost for ever to the people of London.

In 1870, Mr. Fawcett moved and carried an address to the Crown praying her Majesty to take such measures as

she might deem most expedient to preserve the forest as an open space for the recreation and enjoyment of the public. As the Government of that day did not take any steps with the view of giving effect to this address, Mr. Cowper-Temple carried a motion against them in the House of Commons, to the effect that measures should be adopted in accordance with the terms of the address. Meanwhile, an Act was carried through Parliament which was little noticed at the time, but which has turned out to be of the utmost consequence in its importance and results. The Corporation of the City of London, seeing what was being done by the Metropolitan Board of Works, and catching the breeze of popular opinion, as manifested in favour of preserving, for the benefit of the public, commons and open spaces, applied for and obtained, in 1870, a Private Act empowering it to acquire land, or spend Corporation funds in maintaining the right to commons, within a radius of twenty-five miles of the City, but outside the boundaries of the Metropolitan district as defined by the Metropolis Management Act, 1855. Fortunately for London the action of the Corporation has not been confined to the belt of land named, large as it is, outside the Metropolitan district, but within a circle of twenty-five miles radius. The proceedings in connection with Epping Forest, and the unequal law suits instituted for the purpose of restraining inclosure, attracted the notice of the City authorities; and the Corporation, having, as owners and occupiers of land within the bounds of the legal forest, certain rights of pasture, in common with other owners and occupiers over an area of 4,000 acres, took the view that they were entitled to a right of pasture over all the wastes, without reference to manorial or parochial boundaries. Holding this view, they determined, in the summer of 1871, to devote a portion of their enormous funds to the noble purpose of rescuing and preserving the forest, with which they had a traditional interest of long standing, in connection with the Epping Hunt. Accordingly, in August, 1871, the Corporation filed a Bill in Chancery against all the lords of manors who had made inclosures on the grounds before-stated. The suit was one of great magnitude and importance, and led, as a matter of course, to a most determined resistance. The case was heard by the Master of the Rolls, in 1874, when a decree was made affirming the existence of the right claimed on behalf of the Corporation, and declaring the illegality of all inclosures made by the lords of the manors within twenty years preceding the filing of the Bill. The practical effect of this decision was to restore and preserve for London nearly the whole of the 6,000 acres, certified by the Commission to have been the extent of the Forest in 1851.

By the Crown Lands Act, 1866, 29 & 30 Vict., c. 62, s. 6, the management of forestal rights in Epping Forest was transferred to the Commissioners of Works. In August, 1871, the Epping Forest Commission was appointed, under the 34 & 35 Vict., c. 93, an Act to amend the 12 & 13 Vict., c. 81, and to extend its provisions and those of the Metropolitan Commons Act, 1866, to Epping Forest. The Commission sat and pursued its labours concurrently with the progress of the Chancery suit, and the City Corporation asserted their claims and argued them independently before the Commission, and also in the Court of Chancery. The preliminary report of the Commission was issued in the spring of 1875, and it concurred in the decision of the Master of the Rolls, finding also that all the enclosures of the past twenty years were bad in law as against the Crown, when its forestal rights had not been legally acquired, and giving full details as to the open waste still remaining, and of the enclosures made within the Forest.

Acts to enlarge the powers of the Epping Forest Commission, and for other purposes; and to extend the time for the Commissioners to prepare and present their final report, were passed as follows:—1872—35 and 36 Vict., c. 95; 1873—36 and 37 Vict., c. 5; 1875—38 and 39 Vict., c. 6; 1876—39 and 40 Vict., c. 3. The Commissioners made their final report in 1877, embodying therein a scheme for the preservation and management of the Forest. The scheme thus submitted proposed that all illegal enclosures of land in the hands of persons other than the lords of manors should remain enclosed. The effect of this proposal if confirmed by Parliament would have been to diminish the open area of the forest by some 700 acres; and the worst feature of all was that those enclosures were dispersed about, greatly interfering with the general aspect and value of the forest. The Government gave notice, in the autumn of the same year, of their intention to propose a measure confirming this scheme. The Commons Preservation Society and the Corporation energetically opposed this part of the scheme, and determined to oppose the Bill itself, if that portion of the measure was retained. The action taken by Mr. Burney, a member of the Commons Preservation Society, and himself a land-owner and commoner at Loughton, brought matters to an issue. He took forcible measures to remove the fences surrounding the 700 acres in question, the inclosure of which had been practically declared to be illegal by the Master of the Rolls. The course adopted by Mr. Burney was condemned by the Court as premature, pending the expiry of the Act constituting the Epping Forest Commission; but it led to the abandonment of this part of the scheme by the Government, terms having meanwhile been come to with the lords of manors, and others assuming to be legally interested in the matters in dispute. The measure finally proposed and carried, recognised and secured as forest all that remained uninclosed, and all that had been illegally inclosed during the preceding twenty years, with the exception of certain portions built upon, and the gardens, &c., thereto attached.

The Epping Forest Act, 1878, appointed the Corporation of the City of London, by whose energetic action and liberal expenditure of money the Forest has been saved, its conservators; the chief ranger to be appointed by the Crown, and Sir Arthur Hobhouse, as Arbitrator, to hear and adjudge claims and decide questions of disputed compensation. The total area of forest preserved and protected is 5,347 acres, and the park purchased, 182 acres; total, 5,529 acres. The total cost to the end of the year 1882, was £330,310. 10s. The expenditure has been large, but it was for a noble purpose, and a most worthy object has been attained.

(To be continued.)

Swimming and Ling's Swedish Exercises.—Mrs. Florence Williams, Certificated Teacher. Schools and private families attended.—The Crown Baths, Kennington Oval, S.E.—[Advt.]

Measures that have contained oil may be cleaned with a solution of permanganate of potash. To remove resinous solutions wash with caustic alkaline lye, and rinse with spirit.

Gas.—The Silver Medal of the International Exhibition held last year at the Crystal Palace, has just been awarded to Messrs. Jas. Stott & Co., of 174, Fleet-street, for gas governors. The medal is remarkably massive, engraved in high relief on reverse and obverse, and the accompanying certificate is a masterpiece of artistic designing and execution from the press of Messrs. Blades, East, & Blades.

THE TRICYCLE, AND ITS RELATIONS TO HEALTH.

By Various Writers.

IX.—KEEPING THE MACHINE IN ORDER (*concluded*).

By W. J. Spurrier, C.T.C.

With best machines, the frame is now invariably composed of weldless steel tubing (which is the lightest and strongest material that can be used for the purpose) with hollow connecting sockets at the junctions, and the necessary connections for the bearings, handles, &c., all being properly fitted and brazed together.

Ball-bearings should be adjustable, the principal methods in vogue for doing so, for the crank shaft and revolving axles, are by means of a milled side plate, with a correspondingly indented stop-piece, which is screwed up so as to keep the side-plate in position; and some have an adjusting screw at the side or bottom of the case. On account of the variety of arrangements for adjusting the bearings, it is best to obtain instructions for each particular make, from the manufacturer or agent. This latter remark refers especially to the small wheel bearings, which require more constant attention, and are rather difficult at first to manage. The adjustment consists of a conical part and a lock nut, and in adjusting, the cone must not be screwed up tight, the wheel should shake a very little, because when the lock-nut is tightened up, it generally takes up the remaining side-shake. A properly-adjusted small-wheel bearing is known by its just, and only just, running freely.

The driving power is imparted to the wheels from the crank-shaft, by means of either an intermediate gear-wheel or an endless chain mounted upon suitable chain-wheels. And where there are two equal-sized parallel wheels, they should both be driven by the intervention of a suitable differential double driving-gear or two-chain arrangement. With gear-wheels only, the bearings have to be considered, but chains are generally used. The drawback to chains was the stretching, but this is now overcome in several patterns, notably in that known as Morgan's. Each chain is mounted upon two chain-wheels, an upper one attached to the axle or wheel, and a lower one fixed on to the crank-shaft. If there is considerable movement of the pedals before any motion is imparted to the wheels, and a clicking noise is made as the machine is propelled, the chain wants tightening. If this is not done it is liable to slip teeth, or even come right off the chain-wheels. The means for the adjustment of the chain will be found at the connections of the crank-shaft bearings and the frame. There are several methods used, but they generally consist of screws or bolts with lock nuts, which have to be loosened at both sides. The crank-shaft must then be lowered, so that the chain is left just easy, not tight in the slightest degree, and the nuts all made secure. Great care must be taken that both the crank-shaft bearings are exactly level. The best lubricant for the chain is black-lead (plumbago). A new chain should at first be oiled; and when run in, the oil has to be cleaned off with turpentine, and the plumbago brushed on.

Pedals are subjected to an enormous amount of wear, and to compensate for this, manufacturers have given much study, with considerable success, the result being many improvements in ball, roller, cone, and plain ones. It is a wise investment to have the finest pedals to be obtained. About the best plain pedals for double-cranked shafts are those having the fixing-guide put on the shaft in the centre of the pedal. Central-geared tricycles at the present time, are the most perfect for adjustability, &c., but unless of special construction are not suitable for ladies' use.

The steering arrangements have now to be considered. The Stanley head is the pattern mostly used, and requires oiling at the top, for which purpose there is a small oil-hole, and inside, just above the wheel, or in two similar places, wherever the steering-joint may be. Particular care must be taken here to use very little oil, so that it does not run out on to the rubber. When the steering is effected by means of a rod connecting the handle with the arm on the head, attention will have to be occasionally given to both ends of the said rod. The rack and pinion in some machines, when the handle has been turned too far, become disconnected; but this is easily put right again. There should always be a spring acting against the rack to keep it in contact with the pinion. At the junction of the rod with the arm before-mentioned, if there is any rattle, and it cannot be screwed up tight, a washer of iron or leather must be inserted. A suitable elastic band will often temporarily stop parts from rattling. The steering-head may want adjusting; this is done by removing the cap or first nut, which acts as the lock-nut, then screw down the remaining nut so that there is not any shake, and screw down tightly the cap or lock-nut.

A properly-constructed band-brake to be satisfactory, may perhaps require a spot of oil at times; the lever joint and stop are sure to want this attention. If the machine is fitted with small single or double band-brakes, not lined with leather, they will have to be regulated to keep them to their work in unison, and if the friction is not sufficient a little powdered resin must be sprinkled on the drums. A spoon-brake on the small rear wheel is totally inadequate, and double spoon-brakes wear out and require mending; pieces of box-wood or leather fastened on the spoons act well.

Care must always be exercised in tightening up nuts and screws not to apply too much power, or the thread may be stripped off the screw or the nut be burst.

Spanners must always fit the nuts, or the nuts will be soon spoiled.*

On front-steerers a splash-guard is a great acquisition; it can be readily applied, and should consist of a square of leather (tin or iron rattles), bound with wire on to the frame and backbone of the front wheel.

Excess of oil should be removed, and ball-bearings cleaned out occasionally with petroleum or turpentine.

After a ride over dirty roads, the tricycle should be washed, as an ordinary carriage should be, a bucket of water, a brush, some dusters, and a leather to polish it off being all that are required. But a lifting-jack, wheel-washing trough, tweezer helps, and wheel-brush are of great assistance. After washing, all bright or plated parts should be rubbed with vaseline or "cycleum," to keep them from rusting.

* [We should like to add that, as far as our experience goes, the "spanners" usually sold are of a very inefficient kind. There is great need for a new, handy, and reliable make of "spanner."—Ed. H.]

Medical and Sanitary Exhibition, 1881.—Reward of Merit.—International Health Exhibition, 1884.—Stand 69.—Diabetes. Van Abbott's Gluten Bread, and all other suitable Foods for Diabetics, Dietary Table, Menu, Cooking Receipts, and Price List, post-free on application. Delicate Children. Van Abbott's Hypophosphite of Lime Biscuits, for Children suffering from Debility, Deficiency of Bone, or Ricketts. See the *Lancet* and Health. Constipation. Van Abbott's Bran Biscuits. Dyspepsia. Van Abbott's Malt Biscuits. Van Abbott's Vegetable Bread and Milk, Saccholac for Infants, Imperial Granum, Rolled Avena, and all American Cereals for Infants and Invalids. Hathorn Table-Water direct from the Springs in Saratoga, U.S.A. G. Van Abbott, 5, Princes-street, Cavendish-sq., London, W.—[Advt.]

The best oil for lamp or machine is sperm, but as it is sometimes difficult to obtain this oil pure, it is well to use a special oil, and these are now prepared in great perfection, notably Tringham's "Ruby" and "Electric" lamp oils, or Whittle's "Bright light" for the lamp and "Cycle" oil for the machine. Messrs. Lucas also supply a special oil for their celebrated "King of the road lamp." The construction of a good lamp is now understood, and there are many excellent ones to be obtained at very moderate prices. To prevent the lamp-light being jolted out is very desirable, and may be done by having a suitable oil. I have tried the same lamp with different oils; with sperm or special oil it did not matter if the lamp even fell into the road, the light was not extinguished; but with a common oil the difficulty was to keep a poor light burning. To facilitate the lighting of the lamp apply a little petroleum to the wick, and to prevent rattle see that the reservoir is properly replaced and the fastenings are securely closed.

Important points are that a tricycle has as few different-sized nuts as possible, and to have flat spanners to fit them. Especially don't be without a small spanner for the small nuts. As there are nuts of considerable size on a tricycle, a movable spanner is very useful; it must be strong and of simple construction, and at least six inches long. The best that I have used answering these requirements is Harrison's "Hercules," six inches with handle.

Accidents such as a buckled wheel, bent axles or cranks, &c., do not come under this heading, and any but very slight ones generally require the aid of a skilled mechanic.

Lotion for Severe Bruises.—Dr. Hewson, who resides in a town of Texas where accidents from saw-mills and lumber-works are frequent, communicates the formula of a lotion which he says he has found of great utility in treating the severest bruises and contusions:—℞. Sodæ Hyposulphit, four ounces; Acid Carbol. Cryst., half-an-ounce; Glycerini, two ounces; Aquæ, one pint. A cloth well saturated in the solution to be kept constantly applied to the part.—*Philadelphia Medical News.*

Ventilation of Public Buildings.—Messrs. Robert Boyle & Son, 64, Holborn Viaduct, and Glasgow, have recently applied their system of ventilation to the Head-Quarters of the Honourable Artillery Company, Finsbury; Liberal Club, Sheffield; Burton Club, Burton-on-Trent; County Hall, Menai-bridge; Franciscan Convent, Bridgwater; New Lecture Hall, Newcastle-on-Tyne; Bromley and Beckenham Joint Hospital; New Public Baths, Lewisham; London and County Bank; St. Austell Union; Hull Workhouse, Hull; New Workhouse, Wandsworth; Richmond Union, Surrey; Hanwell Police Station; New Police Station, Mitcham; Her Majesty's Prison, Leicester; and Her Majesty's Prison, Manchester.

Feeding Infants.—If a Hogarth of to-day were to paint an idle and an industrious nurse, he would represent the infant belonging to the former asleep, with one end of the tube in its mouth, the other end losing itself in an empty feeding-bottle of the ordinary type. There are other disadvantages with the widely-used tube-bottle, one of which is that it is not nearly so easily kept clean as the slipper-bottle. Too often infants are fed simply because they cry. True, the infant has "no language but a cry," but the cry may mean that the stomach is already over-loaded. An infant crying "in the night" may be unhappy too, because it is damp or cold, or, we are told, it may be that it wants a light. So the cry does not always mean hunger.—*Dr. Owen.*

Personal Health

"Be timely wise;
With health all taste of pleasure flies."—*Gay.*

INFLUENCES OF SCHOOL LIFE ON EYESIGHT.

By Simeon Snell.

Ophthalmic Surgeon to the Sheffield General Infirmary.

THIRD AND LAST PAPER.

Javal published some short time since his very valuable observations on "The Physiology of Reading." He discovered the interesting fact that in reading, the point of fixation runs horizontally along the upper part of a line, cutting the letters just below their tops. The other parts are seen indirectly by those parts of the retina at a greater or less distance from the centre. The accuracy of this fact is readily demonstrated. It is far easier to read the upper half of a line, the lower part being wanting, than when the upper half is absent and the lower present, as the following sentence will show:—

To test this the reader will see that this sentence will be much more easily read, the lower half being wanting than this where the upper half has been removed. And special words are not chosen, nor is special type selected.

Taking into account the frequency of capitals, the dots, and long letters, it is found that out of 100 exceeding the line, 85 project above and 15 below it. Above the line are all capitals, the dots of i and j, and the letters b, d, f, h, k, l, t, whilst below are g, j, p, q, y. From this fact Javal suggests such alterations in the letters that the upper parts would be clearly distinguished, as the eye runs horizontally along; the tails of the letters below the line he would alter slightly as well. Extended lines are distinctly hurtful, and therefore short lines should be preferred. The change of focus in following long lines is annoying, as well as injurious, as the readers of old quartos well know. It has been suggested, as a further improvement, that some day we may read from right to left and follow the succeeding line from left to right. The next sentence is printed in this manner:—

"There is not a proclamation of
Napoleon to his soldiers in which
glory is not mentioned, nor one in
which duty is alluded to; there is
not an order of Wellington to the
troops in which duty is not inculcated, nor one in which glory is
mentioned."

But whatever advantages may be supposed to attend such a method of printing, it is evident that at first the reading of it would be by no means easy.

The same sentence is now printed in columns in the manner adopted by Eastern peoples (Chinese, Japanese), but with them a single symbol represents a distinct idea. In reading, commence at the right at the top, and continue downwards:—

Pure Water is such a vital necessity that, without it, illness is certain. None are more prone to the ill effects when impure than the young. To ensure a pure supply send a post-card to the London and General Water Purifying Company, Limited, 157, Strand London, W C., who will return particulars post-free.—[Advt.]

to	mentioned,	
his	nor	There
troops	one	is
in	in	not
which	which	a
duty	duty	proclamation
is	is	of
not	alluded	Napoleon
inculcated,	to ;	to
nor	there	his
one	is	soldiers
in	not	in
which	an	which
glory	order	glory
is	of	is
mentioned.	Wellington	not

A few words as to needlework may appropriately come here. It is impossible to regard this portion of a schoolgirl's work as otherwise than a very fruitful source of danger to eyesight, and this is especially so to the very young. Certainly there is finer work required than is really necessary, and what proportion of children, in this day of sewing-machines and ready-made garments, will find hereafter a good return for time expended at the risk of injury to vision? This is particularly a subject for lady members of School Boards to bestir themselves upon, and prove to sceptics the *raison d'être* of their existence.

The number of hours employed in school is closely associated with the question of "Over-pressure in Education." The subject, however, claims from us a few words. Frequent breaks in the hours of study are desirable, and application for too long a time is to be deprecated. It is, moreover, an opinion held by several that children learn as much or more by a short period of daily study as they do by a much longer one. With a tendency to short sight, the time for study will often have to be lessened, and if the affection is increasing perhaps absolute rest advised.

The following instance is one among many, frequently coming under the notice of the writer, exemplifying the deleterious influences already referred to. A bright, intelligent boy of ten was brought by an interested friend, in consequence of failure of his sight. He was and had been for eighteen months an inmate of one of the largest and most popular of our orphanages. When he entered he could read the names of the streets, now he could not.

He had a moderately high degree of short sight. Inquiry elicited the following facts: he rose at 6.30, school from 7 to quarter to 8, breakfast at 8, school 9 to 12, dinner and play 12 to 2.30, school 2.30 to 5, tea and play 5 to 7, school 7 to 8. The feeding was apparently excellent. The books were some of them of good-sized type, some were very small and poor. The seats had no backs to them. The light from the windows shone full in his face. Circumstances here were favourable to the production and increase of short sight, particularly in one who inherited the tendency from his mother. Work before breakfast, fasting, must be condemned. If this poor lad stays his five years more at the Orphanage, he will be well cared for and *educated*, but at what a cost, if vision is permanently injured, which must be the case if the injurious surroundings are unaltered.

A Valuable Invention.—It is gratifying to learn that Mr. R. Adams, of 17, Blackman-street, London, S.E., whose fanlight-openers and silent door-springs are being extensively used, has received large orders for his Patent Reversible Window. The sashes, although they slide up and down in the usual way, can be instantly turned inside out, enabling anyone to clean each side of the glass with ease, while standing in the room.—[Advt.]

The deleterious influence of "home-lessons" on the visual organs can hardly be questioned. Perhaps with every one the mental faculties are clearer and brighter in the earlier part of the day than later on, and with children especially tired and fagged with the day's schooling, burdensome enough of itself, the hours of ease, play, and repose are diminished by this practice of preparation. Nor, if this preparation be faithfully performed, with the brain already fatigued, is it, as Dr. Crichton Browne has pointed out, rendered innocuous by a long interval of recreation. It can be shown also that any lowering of the nervous system enables any baneful influence to act with increased force on the visual organs. This "home-work" is bad enough in the homes of the well-to-do, but it is doubly injurious among the class that make up the numbers attending our elementary schools. We have only to consider their homes—the cramped rooms, often unhealthy surroundings, and the many disturbing elements; and as to light, the farthing rushlight was preferable, in many particulars, to the present-day gas-bracket, as seen in the houses of the poor, often in an inconvenient position, and perhaps at a distance, for it possessed this important advantage—poor illumination as it gave—that its light could be brought near the desired place. The "home-life" of the scholars plays a more important part in causing the ills of "school-life" than is always allowed.

In support of this contention as to "home-work," it may be mentioned that Dr. O. Just, of Zittau, in Saxony, has furnished interesting statistics on this point. After comparing the prevalence of short sight in given schools in which hygienic arrangements as to light and space left nothing to be desired, with those previously to the adoption of preventive sanitary measures, he came to the conclusion that short sight "does not chiefly result from insufficient illumination of the schoolrooms, but rather from the great and ever-increasing demands on the industry of the pupils at home, forcing prolonged labour on their eyes during the evening hours, frequently by insufficient artificial light." To this he adds: — "I am far from underrating the dangers of bad sanitary conditions in the schoolrooms, but would urge the necessity to disencumber our children's eyes of as much evening work as is possible." In many cases it should be dispensed with altogether, and it is gratifying to notice that in some elementary schools, at all events, the practice is discouraged. Encouragement should be given to healthful recreation and physical exercise. In the hurry-scurry of forcing as much learning as possible into the heads of the rising generation, it is apt to be overlooked that a physical education is as requisite in the battle of life as a mental one; in fact, it may be averred that in the struggles for existence, among the survivals of the fittest will be found more with a good physique and less learning than those more highly cultured but with a neglected physical frame. "Mens sana in corpore sano" is an aphorism the importance and truth of which must remain.

In conclusion, it may be mentioned that reference was made at an earlier part, under Dr. Cohn's statistics, to the less frequency of short sight in country children, and this fact could be supported by other evidence. It may, of course, be urged this difference depends on the less complete system of education prevailing in rural districts—a statement not so true now as formerly—but the main reason is to be found in the diverse daily life of the country lad and his city cousin.

Sponges can be bleached expeditiously by means of bromine dissolved in water.

The Family Circle

"The child is father of the man."—*Wordsworth.*
"In bringing up a child, think of its old age."—*Joubert.*

A FEW SIMPLE DISHES.

Carrageen.—Carrageen, or Irish moss, is a very beneficial article of diet for patients suffering from asthma or bronchial affections. Half-an-ounce of dried moss will be sufficient for a small shape of this delicious blanc-mange. Soak the moss in rather less than a pint of milk—say three-quarters of a pint; sweeten to taste; place milk and moss in a smooth saucepan, and bring slowly to the boiling point, stirring well the whole time to prevent the moss from sticking to the saucepan. When the ingredients have boiled well up, remove the saucepan from the stove, and strain the liquid through a coarse linen cloth; pour into small basin or mould, and when cold turn out, and you have a pure white food, equal in appearance to a mould of the finest arrowroot. If allowed to boil longer than about one minute the flavour is coarser, and the blanc-mange is too stiff and firm when turned out. Carrageen is very plentiful by the sea-shore in many parts of England and Scotland, and careful housewives frequently amuse themselves by picking and bleaching the moss for home use during their annual holidays at the seaside. Iceland moss is rarer, and more expensive; it enters largely into the composition of many sorts of cough mixture.

A Variety Beef-Tea.—Patients frequently get tired of the flavour of ordinary beef-tea, and a tea made in the following manner will afford a pleasant variety to the jaded palate. Take half-a-pound of lean mutton, half-a-pound neck of beef, half-a-pound fillet of veal; cut up in small pieces, place in a saucepan with one and a-half pints of cold water, salt to taste, any other flavouring that may be liked; simmer gently for one hour, then strain, and remove any floating fat, by passing a small piece of kitchen-paper over the top of the liquid.

Eggs Poached in Beef-Tea.—Eggs poached in strong beef-tea have a very delicious flavour, and are a nice change from poached eggs as usually cooked.

"Soocus."—A very nutritious and easily digested food for invalids is a preparation of very fine flour of oatmeal. The dish is well known in rural districts of Scotland under the name of "soocus." The husks of oats, when separated from the oatmeal in the process of grinding, are covered with an exceedingly fine powder, or flour. A quantity of these husks are placed in a large jar, and covered with tepid water, then well stirred with a wooden spoon, or sputtle, and set aside in a cool place for three days. The liquid is then strained off, and a little fresh water added to it, and set aside for twelve hours; during the process of soaking and bleaching the farina undergoes a chemical change and acquires a slightly acid flavour, which is much relished by most invalids. The flour will be found in a solid mass at the bottom of the jar, and the water on the top is perfectly clear; this water is poured off, and a teacupful of the flour mixed with four teacupfuls of fresh water will be sufficient for a good-sized basinful of cooked soocus. Place the water and flour in a smooth saucepan, add a little salt, and place on a moderate fire; stir well the whole time that the mixture is on the stove; if not well stirred the soocus will be lumpy. When it reaches the boiling-point it will be rather thick and of a nice, smooth consistency; boil for fifteen minutes, then pour into a soup-plate or pudding-dish, and serve warm with sugar and milk, or cream. This farina is much finer and more delicate than the flour of oatmeal prepared by any other process, and many invalids have relished this food, and experienced the most beneficial results from the use of it, at a time when they loathed almost every other article of diet. The remainder of the flour, or pulp, may be kept for several days fit for use, if the water on the top is poured off every day and fresh water added.

Gloucester Jelly (as ordered for the Duke of Gloucester by Sir Joseph Jellrand).—Cut a knuckle of veal into very small pieces, put it into a pan with a few peppercorns, a blade of mace, and a little salt. Pour one quart and a-half of Madeira wine over the veal, and add half a pound of Malaga raisins, and stew very gently until liquid is reduced to half the quantity. The saucepan is kept closely covered, and the simmering process is gentle; three hours will be required to cook the jelly. A small quantity to be taken four times a day. No water is used in simmering the jelly.

That sugar conduces to fat production is a common notion which has a sound philosophical foundation. It also contributes in other ways to the sustenance of the frame. Being very soluble, it requires no preliminary digestion to fit it for being absorbed. In some cases, however, it appears very readily to pass into the acid fermentation, and so give rise to indigestion, characterised by acidity and flatulence.

How Plants may Purify the Air and the Soil.—The beneficial effects which plants and trees may produce on dwelling sites and on the air of habitations have been made the subject of a paper by Dr. James Evans before the South Carolina Medical Association. The network of fine fibrous roots of trees and plants, traversing the soil in every direction, feeds on the organic matter which would otherwise undergo decomposition, polluting the soil, air, and surface-water. The vegetation also absorbs excess of moisture and drains the soil. This moisture is afterward exhaled from the leaves, and there is no doubt that plants also exhale, with the moisture, some of their active and peculiar principles. The scent of mint and thyme is due to menthol and thymol, antiseptics of the highest value, and it is not improbable that their exhalations have the same property. The eucalyptus is remarkable as a prophylactic against malaria. Its leaves immersed in hot water are also said to be an efficient disinfectant in the sick-room. By virtue of their power to generate ozone and to split up carbonic-acid, absorbing the carbon and setting free the oxygen, plants remedy to some extent the evils of bad ventilation. In Pasteur's virus-culture experiments he found that, when they were conducted under a diminished supply of oxygen, the germs retained their primitive virulence; but, on the contrary, when they had access to oxygen the virus became weaker. It has been known, for a long time, that marsh miasm is intercepted by a forest, and that persons living in localities so screened are exempt from attacks of malarial fever. The explanation of this is probably to be found in this discovery of Pasteur. When a cloud of malarial germs are wafted from a marsh to the neighbouring forest, they encounter a continuous stream of oxygen pouring forth from every leaf, attenuating the virus and rendering it innocuous.

Scott's Midlothian Oat-Flour.—Messrs. A. & R. Scott, of Kingston, Glasgow, and Finsbury-square, London, have prepared a singularly pure and nutritious "Oat-flour," which bids fair to take high rank among the food products which are specially adapted for infants and invalids, and for the use of dyspeptics in particular, whose digestion is weak, and whose stomachs refuse to assimilate foods of ordinary kind.—Ed. Health.—[Advt.]

Recreation and Health

"Health is the vital principle of bliss,
And Exercise of health."—*Thomson.*

HEALTH AND HOLIDAYS.

FOREIGN HEALTH-RESORTS.—X.

By a Physician.

Madeira.—Few health-resorts have suffered so much from indiscriminate patronage as the Island of Madeira. Some time ago it was all the rage as a winter station for consumptive patients, and every variety of the disease was immediately despatched there, but of late years, in consequence of the unsatisfactory results thus obtained, it has fallen out of repute. The climate is extremely equable, warm, and somewhat moist—the exact opposite of what we find at Davos Platz and in Upper Egypt, where we have great dryness of the atmosphere, with, at the former place, much cold; and though certainly not suitable for every form of consumption or chest affection, undoubtedly it is suitable for some. Invalids in the more advanced stages of phthisis, where the disease is complicated with frequent attacks of bronchitis, do exceedingly well here, and it is also highly beneficial in certain forms of asthma. Persons suffering from fever or lung disease, are likewise benefited, and, as a rule, Madeira may be set down as suitable for all cases of an inflammatory character, with the exception, under certain modifications, of consumption. As a natural consequence of the climate, vegetation is most luxuriant. Mean annual temperature, 66·70° Fahr.; winter, 61·20°. Annual rainfall, 29 in. The capital of Madeira is Funchal; population, 20,000. It is here, or in the neighbourhood, that visitors for the most part reside. The sanitary condition of the town is good, and living moderately cheap. Hotels: Santa Clara, Royal Edinburgh, Miles' Carmo, German, Faulkner's, &c. Fares from London, *viâ* train to Liverpool, thence by steamer: First class, £15; second class, £13. 5s. The passage takes from six to six and a-half days.

Marienbad.—The principal cold alkaline saline spa of Bohemia. It is situated in a lovely, richly-wooded valley, nine miles from Eger, and 1,930 ft. above the level of the sea. The chief springs are the Kreuz-brunnen and the Ferdinand's-brunnen. The waters are employed both externally and internally, and are useful in cases of constipation, congestion of the liver, and affections of the spleen. Mud baths are given here. Surrounding walks pretty, but of a hilly nature. Population, 1,000. Hotels: Hotel Klinger, Neptun, Englischer Hof, &c. Fares from London, *viâ* Calais, Brussels, Cologne, Mayence, Wurtzburg, and Eger: First class, £6. 15s.; second class, £4. 18s.

Mentone.—This fashionable health-resort is situated on the Western Riviera, twenty-six miles from Nice, and ten from Bordighera. Owing to its well-sheltered position and warm, genial climate, it forms an admirable winter station for consumptive patients. The exceptionally cold nights that are occasionally met with at Cannes and Nice are unknown here, and orange and lemon trees flourish as healthily out of doors as our own lilacs and laburnums do at home. The seasons, however, vary very considerably, and once in about every twenty years an unusually severe winter is experienced. The town is composed of two portions, of which the older part is built on a ridge that projects into the sea, thus dividing the bay on the shores of which Mentone is situated into two portions, an eastern bay and a western bay. The temperature of the town differs according to which of these two bays the observations be taken from — indeed, practically, Mentone may be said to possess two climates. Thus, the eastern or smaller bay is much the better sheltered of the two, and is, consequently, the warmest, the temperature being about 3° Fahr. higher than in the western bay, and the atmosphere more humid; while in the western bay the air is cooler and more invigorating, and, at times, refreshing northerly breezes are blown along the valley-openings in the adjacent hills. The average winter temperature (as taken from the old town) is 52° Fahr., and the number of rainy days forty-seven. The walks and drives in the neighbourhood are very numerous, and for the most part of great beauty and interest. The cases for which Mentone is particularly adapted are consumption, chronic rheumatism and gout, affections of the liver, and convalescence from the principal forms of acute disease; it is also suitable in cases of anæmia (bloodlessness), and in many of the complaints that more especially affect old age. The season extends from the end of September to the end of March. Population, 10,000. Hotels: Hôtel des Iles Britanniques, Grand Hotel, Cléricy's Hôtel des Anglais, Hôtel de Belle Vue, Hôtel d'Orient, Grand Hôtel du Louvre, &c. Fares from London, *viâ* Calais (or Boulogne), Paris, and Marseilles: First class, £8. 9s. 6d.; second class, £6. 7s. 6d. A cheaper route is by Dieppe, the fares for which are £7. 3s. 6d., and £5. 7s.

Monaco.—About this little town, so picturesquely situated on a rocky promontory two miles from Nice, five from Mentone, it is not necessary to say much. Were it not for the presence of its gaming-tables, and the fast and disquieting element thereby introduced, it would probably be one of the most popular and fashionable health-resorts of the Western Riviera; for not only is it most advantageously situated, and well sheltered from the winds, especially to the north, but the little town is extremely interesting in itself. However, under present circumstances, we need say no more.

Mont Doré.—A village in France, thirty miles from Clermont-Ferrand (department, Puy de Dôme), in the volcanic district of Auvergne. It has long been celebrated for its cold and warm alkaline springs, which have a high reputation in the treatment of chronic affections of the respiratory organs. Much, however, of the cure in these cases may be attributed to the altitude of the village—3,300 ft. above sea-level. The season begins in June and ends with the close of September. The accommodation for bathing purposes is very inferior. One hotel. Fares from London, *viâ* Calais and Paris to Laqueuille, thence by coach: First class, £5. 10s.; second class, £4. 2s. 6d.

Montpellier.—Once the best-known and most highly-frequented health-resort in the south of France, but now comparatively deserted. Climate warm, but variable. Mean annual temperature 56° Fahr., winter 41°. Yearly number of rainy days, 48. Population (1881), 52,673. Suitable for cases of asthma and chronic bronchitis, where there is much expectoration. After sunset there is a sudden decrease in the temperature, with an abundant fall of dew, and of this visitors should beware. Hotels: Hôtel Nevet, Hôtel du Midi. Fares from London, *viâ* Calais, Paris, and Tarascon: First class, £7. 3s.; second class, £5. 7s. 6d.

COCA OR CUCA LEAVES.—The new stimulant, gives renewed life and vigour to the *Weary* and *Overworked*. Dr. Blunt, of Northampton, says:—"The recuperative powers of this restorative are truly astounding." Sample packets, together with medical and scientific opinions, 13 stamps, post free, from J. T. Marks & Co., 17, Newcastle-street, Farringdon-street, E.C.—[Advt.]

Jottings from the Journals

"Th' ingredients of health and long life are
Great temperance, open air,
Easy labour, little care."—*Sir Philip Sidney.*

"Killed by Lightning."—The lamented death of the Earl of Lauderdale from the effects of lightning has served to emphasise the danger to life that lurks in one of the grandest and most entrancing manifestations of Nature—a thunderstorm. In the majority of instances no amount of forethought or care can save the victim from the impetuous and capricious influence; and yet we think that not a few fatalities might be avoided if people only possessed the most rudimentary knowledge of electrical science, and the presence of mind to act upon such knowledge. But, in truth, there is much that seems mysterious in the lighning flash and its attendant phenomena. The brilliant presence and the wondrous sequel inspire the imagination more than the judgment. Poets and sages have clothed the zigzag writing in the air with attributes that are many of them only links in the chain of conditions of which itself is one, and have erred in assigning to the comparatively harmless thunder the dire effects of the momentary passage of the electric fluid. In one of his "Hebrew Melodies" Lord Byron has written, "As fall the oaks at once, and blasted by the *thunderstroke.*" The subject of electro-dynamics is very abstruse, and yet it requires no great acuteness of intellect to enable one to grasp the main facts relating to the correlation and mutability of forces. It may not, however, be easy to demonstrate to the unscientific mind how an electric current displaces the atmosphere, and causes those marvellous successions and intervals of sound which in the aggregate are known as thunder; how it is rendered visible as a flash of light, or is transmuted to electrolytic action, decomposing the most stable chemical compounds; or, lastly, how it is converted into an outburst of mechanical violence of uncontrollable and almost immeasurable power. The familiar exhibitions of the workings of Nature's laboratories may be utilised for instruction and guidance. Had George Henry Mitchell, killed by lightning on Saturday week last whilst seeking shelter under a tree, been aware of the danger he was incurring by placing his body in close proximity to an imperfect conductor, he would have preferred a good drenching in the open meadow to the treacherous protection he sought from the storm. In this man's case the face was blackened, the hair on the face and head singed, and the left tympanum ruptured; his hat was torn, the laces of his boots charred, and in the instep of each boot a large rent was made. Results very similar to those last mentioned may be seen in the museum of St. Mary's Hospital, but in that instance the patient recovered. In Lord Lauderdale's case, a deep wound was inflicted on the forehead, scorched lines indicated the path taken by the electric current, whilst his lordship's watch and chain were fused. It is a well-known fact that the course of the superficial vessels and nerves is occasionally mapped out with tolerable accuracy. The blackening is partly due to simple burning, partly to reduction of the oxyhæmoglobin of the blood. It was formerly supposed that the blood of animals killed by lightning remained quite fluid; but such is not the fact; the coagulation, nevertheless, is imperfect.—*Lancet.*

Scott's Midlothian Oat-Flour.—There is no preparation which can be assimilated with greater facility than such a flour as this. Those who suffer from indigestion might substitute for their ordinary breakfast materials this flour, prepared according o the recipe given by Messrs. Scott and printed on the tins.—Ed Health.—[Advt.]

The Stamp Act and Proprietary Medicines.—The injurious influence of the stamp on proprietary medicines continues, we are pleased to observe, to excite a good deal of discussion in the public press. Dr. Balthazar Foster, the President of the Council of the British Medical Association, in a communication to the *Times*, detailed the action taken by the Association at the meeting of August 1st, and our contemporary has summed up the objections to the present systems in one pithy sentence. "If a medicine be good, it is assuredly unjust to raise its price by a tax; while, if it be deleterious, or if it do not possess the properties which its makers advertise, it is wrong that it should bear a Government label which may mislead the buyer." It has been said that the Act was in part intended to stop the traffic in cheap medicines hawked in the streets; if this be so, then in this respect also it has signally failed. That the hawkers of cheap medicines still flourish may be easily verified by any one who will walk on a Saturday night through one of those streets where the working classes do their marketing. The tricks and pretensions of the nostrum-mongers are so audacious, that it appears wonderful that they do not defeat their own ends: yet they do a good trade, and the same man may be seen, week after week, in the same spot, going through the same performance and making the same speeches. The authorities at Somerset House either will not condescend to notice these petty traffickers, or fear to put the law in motion.—*British Medical Journal.*

* * *

Sanitary Legislation.—Mr. Charles Wingate, of New York, points out in the *Medico-Legal Journal*, published in that city, that sanitary legislation in England dates from a very early period. For instance, Edward II. decreed that a butcher who sold measled pork should be fined for the first offence, pilloried for the second, imprisoned and fined for the third, and expelled the town for the fourth. Richard II. took measures against the pollution of rivers. Henry VII. prohibited cattle-slaying within walled towns with three exceptions. Elizabeth enacted that only one family might dwell in a cottage. The plague, in the time of Charles II., led to many health enactments. More than two centuries ago we read that Shakespeare's father was repeatedly fined by the authorities of Stratford-on-Avon for throwing garbage into the streets in front of his cottage.

* * *

Rice-Water.—The following recipe for making rice-water will be found useful at this season. Take a dessert-spoonful of rice for each pint of water, let it boil three or four hours, strain, and flavour with lemon-juice and sugar. This drink will at once arrest such diarrhœa as proceeds from improper food or from slight internal irritation or inflammation, and is likewise sufficiently nourishing for persons suffering from such derangement in hot weather.

* * *

Beverages in Metallic Vessels.—At the suggestion of Dr. Cyrus Edson, of the Health Department, says the *Boston Medical and Surgical Journal*, an ordinance has been passed forbidding the use of vessels made of brass, lead, copper, or other metallic substance, in the sale of beer, soda-water, syrups, and other beverages or flavouring materials, on account of the danger of the formation of compounds detrimental to health. An investigation into the character of the lining of the soda-water fountains of Brooklyn is at present being made by Health Commissioner Raymond.

In some parts of Australia the natives are said to procure water from the roots of the Eucalyptus.

Our Bookshelf

"Reading maketh a full man."—*Bacon.*

CHEAP HEALTH KNOWLEDGE.

Health Primers: A Series of shilling volumes on subjects connected with the preservation of health. (London: W. H. Allen & Co., 13, Waterloo-place.)

We are glad, in many ways, to welcome the appearance of these handy little volumes. Not only do they prove in a very forcible manner the growing interest which is being taken in health matters—since the supply will always be regulated by the demand—but they are witten and edited by men who from their position in the medical world, both as teachers and writers, are well qualified to speak upon the subjects with which they deal. The price, too, brings them within the range of all, and of this cheap diffusion of health-knowledge we stand greatly in need. We have received in all ten volumes from the publishers, being those of the series already issued. Three of these, which from the nature of their subjects are more or less connected together, we have arranged in one group, and shall speak of in the present article, the remaining volumes will be alluded to in a future number.

I. *Premature Death: its Promotion or Prevention.*—Under this title, the author has produced a highly interesting and instructive little book. Commencing, in the first chapter, with a statement of how many people die annually in England and Wales before they have reached the natural term of their existence, which may be rated at seventy-five years and upwards,—the number is half a million or thereabout, to the twenty-five millions of population,—he next proceeds to consider the causes of premature death. The latter term, as he takes it, comprehends all deaths that do not result from old age or natural decay of the system. These causes are: (1) diseases of the lungs, including consumption, which are accountable for more than one-fourth of the total number of premature deaths; (2) infectious diseases, liable for about one-sixth; (3) diseases of the brain and nervous system, to which an eighth of the number of deaths are attributable; (4) general diseases (rheumatism, gout, cancer, scrofula, &c, maladies which affect the whole system in consequence of their development and progress, and are not the result from secondary causes of the local disturbance of any particular organ), which are accountable for one-tenth. Then follow in order, as they prove more or less fatal, developmental diseases, affections of the heart and blood-vessels, diseases of the stomach and associated organs, and various other complaints of comparatively minor importance, considered in the light of their influence on the death rate. In the succeeding chapter, the conditions under which these causes of premature death operate are dwelt upon, and the evils of over-crowded dwellings, insufficient sanitary precautions, unhealthy trades and habits, &c., fully and ably discussed, while, as a close, the state of the law in regard to these conditions, with the various enactments at different times passed to facilitate their removal, both by communities and individuals, are referred to. The whole, as we have said, is treated in a highly practical and interesting manner, and cannot fail to recommend itself to the reader.

II. *Alcohol: its Use and Abuse.*—No doubt, to many readers, this volume of the series will, from the nature of its contents, prove more interesting than the preceding one. That it is agreeable to public taste is amply evinced in the fact that already more than ten thousand copies have been sold. Nor is this in any way to be wondered at, for, apart from the merits of the book as a book, the question of intemperance is one of the most important with which we now have to deal. It is one, moreover, that is constantly being brought before our notice, and with the evils of which, from our daily contact with the world, we are all more or less acquainted. In the present volume, however, the writer has endeavoured not so much to confine himself to the dangers of intemperance alone, as to give what shall be a clear and rational view of the entire question—to point out, as he says, "the evil of drinking, and how to avoid it; the good effects of alcohol, and how they may best be gained," the whole being treated from a thoroughly scientific and practical point of view. In this he has succeeded admirably, and few people will be inclined to disagree with his deductions, except those who are so hoplessly bigoted as to have lost all sense of reason whatever. These deductions, for the most part, favour the cause of the total abstainers. For the whole of them we unfortunately have not space, but we may briefly state that the principal one is that the use of alcohol to the *healthy* individual is unnecessary, and, since its habitual employment is liable to produce disease, total abstinence is the safest and wisest course to pursue. For the remainder of the conclusions which the writer draws, with the sound and practical advice which he gives on the subject, we can only refer the reader to the book itself, which he will find in every way worthy of his diligent perusal and reflection.

III. *Personal Appearances in Health and Disease.*—With these, we are all of us more or less familiar—perhaps some of us too much so, since there are certain people in the world who are never tired of pointing out how ill their friends look, and how desirable it is that means should be taken for bettering the appearance. This, however, only holds true in its widest sense, and to detect the finer shades of difference between the personal appearance in health and disease requires the skilled eye of the physician. It is the object of this little book, as stated in the preface, "to try and explain as briefly as possible how and why variations that are so plain on the surface can be taken as indices of disorder within, to give the reasons for form changes which occur within the limits of health, and for those which mark the departure from these boundaries." It will easily be understood how attractive such a book, written on these lines, is likely to be; and we may at once state that the author has worked out his design with much ability and success. Where necessity demands it, the letterpress has been illustrated by appropriate woodcuts. Perhaps the most interesting chapters to the general public will be those in which the alterations of shape and colour are commented upon, but all is equally well written and described. We are sorry we have not space to enter more fully into the book.

Petroleum preserves wood. Applied to wood used for building purposes it was found to render it secure against rot from wet for many years.

More water escapes by the skin as perspiration than by the lungs in the breath, but the proportion is very variable—from both sources, on an average, more than two pints daily. The greatest amount is drawn off by the kidneys—between two and three pints.

New Uses of Oil of White Birch.—The oil of white birch-bark (*Oleum betulæ*), which gives to Russia leather its peculiar aromatic and lasting qualities, when dissolved in alcohol, is said to be excellent for preserving and waterproofing fabrics. It renders them acid and insect-proof, and does not destroy the pliability of the fabric.

Sanitary Appliances, Etc.

BRANCH'S REVERSIBLE BOOTS.

Mr. Branch, of Bethnal Green-road, E., has recently added to the list of hygienic requirements of the feet by his invention of the "Reversible Boots." For these boots Mr. Branch claims the advantages, firstly, of equal wear, each boot being worn alternately on the right and left foot, thus ensuring the absence of the inequalities usually discernible in boots after a few days' wear. A second point claimed for these boots, and, in certain respects, forming a decided gain to the wearer, is the softness of the material employed for the uppers, and the accurate moulding of the boot to the feet which ensues. The boots are thoroughly well made, strongly constructed, and of pliant nature throughout. A lady who has given these boots a fair trial writes to us as follows:—"The boots of Mr. Branch I find to satisfy me in every way. They are very comfortable, soft, pliant, and fit exactly. The 'reversible' plan appears to me to suit admirably the irregularities which, in the case of many feet, are certain sooner or later to appear in the boots worn. I have worn a pair of these boots continuously for six weeks, and at the present time they show only signs of equal wear, and in this respect contrast strongly with the pair I had been wearing before. I found, on changing the boots each day from the other, that a certain feeling of awkwardness at first ensued; but this feeling soon wore off, and at present I perceive no difference on putting the right boot of yesterday on the left foot to-day, and *vice versâ*. A notable feature in Mr. Branch's boots consists in the freedom one experiences in walking in them. A corn which gave me some trouble before I obtained these boots, has ceased to worry me, and this result I attribute to the softness and pliability of the materials used. I have no hesitation in strongly recommending these boots to all ladies who have hitherto failed to obtain that great desideratum—a comfortable boot."

The above testimony constitutes the best proof that Mr. Branch's invention supplies a real want of the day; and we have therefore pleasure and confidence in recommending his boots to the notice of the readers of Health.

The total number of cinchona trees in Bengal at the end of last year was 4,711,168, while the crop was the largest ever gathered, being 396,980 lb. of dried bark. All this was sent to the factory, excepting 41,800 lb. forwarded to England, to be made into febrifuges for experimental purposes in India. The revenue derived from the sale of plants and bark was 6½ per cent. on the capital invested.

The warm weather brings one relief. The manufacturers of cough medicines have withdrawn their advertisements, and the reader of the newspaper no more sees staring him in the face the startling lines, "Consumptive, beware! A little cold will lead to death!" and so on. The cough medicine is now put up in other bottles, and is sold as a first-class hair-dye.

Queer Ideas of Curative Oils.—Some people still hold to the curious old superstitions concerning the curative properties of the oils of certain animals, and to hear the druggists tell of the strange articles called for by some of their customers is to be reminded of the vagaries indulged in by the aboriginal medicine-man in his native wigwam. For instance, there are persons who pin great faith still to the virtues of rattlesnake oil, and who believe it is a specific for rheumatic afflictions. A travelling quack, who announced that his cure-all was partly compounded of rattlesnake, reaped a big harvest of silver coin from crowds not long ago. There is a frequent demand for pickerel oil, which is said to be a cure for deafness, and which is fried from the livers of pickerel. Mud-turtle oil is also frequently called for by people who have stiff joints. It has been but two or three years since all these oils were staple articles in drug stores. Pickerel oil sold for fifty cents an ounce, and turtle oil one dollar a pint. These oils are rarely found to-day, and probably from this very reason are accredited the more wonderful qualities by the oracles.

Our Letter: Box

"Conference [maketh] a ready man."—*Bacon.*

NOTICES TO CORRESPONDENTS.

All Communications for the Editorial Department (including specimens of Sanitary Appliances, &c.), to be addressed to "The Editor of Health," 74-76, *Great Queen-street, London, W.C. Those intended for the Publishing Office to be sent to* "The Publisher," *at the same address.*

Contributors are requested to send stamps for the return of the MSS. *in event of non-acceptance. Every care will be taken to ensure the safety of* MSS., *but the* Editor *and* Publishers *cannot hold themselves responsible for accidental loss.*

Correspondents are requested to write on one side of the paper only. The Editor *disclaims responsibility for the opinions expressed by Correspondents.*

LETTERS TO THE EDITOR.

SCARLET FEVER.

Sir,—I am a constant reader of your useful and highly-instructive periodical, and I much appreciate the scientific and suggestive articles that have appeared in its pages from time to time. As preliminary to the few observations I have to make respecting Dr. Allen Jamieson's second part on scarlet fever, and how to limit its evil effects, I may state that I am now, and have been, Medical Officer of Health in a district where scarlatina has prevailed, more or less, for eleven years in succession,—in other words, where it is indigenous. I may, therefore, claim to have some knowledge more than theoretical of its nature, mode of communicability, and the conditions necessary for the destruction of the scarlatinin, otherwise the zymotic principle.

In the part referred to, I find the following words:—"We can in the same way disinfect his skin, and thus render the scales thrown off in the process of peeling, which takes place during his recovery, innocuous." I would respectfully ask Dr. Jamieson through you, Mr. Editor, if he knows from practical or personal experience that this simple ointment, &c., which he recommends render the poison or germs of scarlatina innocuous—in other words, destroy them? I am astonished that one in the position—a lecturer in connection with the Edinburgh School of Medicine—should make such an observation, when it is ascertained on undoubted authority that such germs require a temperature of 250 deg. Fahr. for their destruction. Disinfectants may render the surrounding medium less favourable for the multiplication and development of these organisms; but I altogether deny that they are rendered inert by any mode of disinfection yet discovered, heat alone excepted.

I fear some people believe that disinfectants possess influence and power which they do not, and others, again, attach too little importance to the proper use of them. The result is not merely a waste of time and material in many instances, but also a serious danger to the communicity. It is very desirable, therefore, that we should be conversant with the comparative usefulness of these agents, and that in applying them we should be guided only by rational principles suggested by the scientific aspect of the subject.

The thermal destruction of any zymotic principle—which is at present the only reliable mode of rendering it inert—is of extreme practical importance to all who may be engaged in sanitary science, and our best thanks are due to such men as Dallinger, Parkes, Ransom, Henry, and Eassie, for their efforts in this direction.—I am, sir, your obedient servant,

Angus Mackintosh, M.D., Medical Officer of Health,
Chesterfield Combined District.

FLIES, INFECTION, AND EUCALYPTOL.

Sir,—The statement publicly made by me a week or two ago, that flies are frequently the transmitters of infectious and contagious diseases, was founded on my own observations extending over a number of years.

That statement has been confirmed within the last few days by a circumstance which has happened in the neighbourhood of St. Petersburg, where three persons have died of blood-poisoning

caused by the bite of flies which had previously settled on cattle infected with rinderpest.

As to the best measures to be taken to prevent the incursion of flies to our apartments, that is a matter which is more open to question. It was in this wise I was led to the conclusion that they objected to the odour of eucalyptol. I lately obtained some "Pulmonic" candles for the use of patients suffering from asthma. These candles contain well-known balsams and resins; and, in addition, a powerful distillate of eucalyptus. Several boxes of them were temporarily placed in my consulting-room, and as they gave an excellent light, and at the same time, acted as effectual and pleasant disinfectants, I used them in the evening to illuminate the apartment, and was soon agreeably surprised to find that I was completely relieved from the plague of flies. I tried the use of the candles in all the other rooms of the house with like effect, and hence concluded that to the refreshing odour of eucalyptol which they emitted was to be attributed the exodus of our former tormentors.

Certainly, it is possible that the result may have been owing to the other ingredients which the pulmonic candles contain. Be this as it may, it is indisputable that, as a disinfectant, eucalyptol is most pleasant and effective; therefore, as it is capable of being so easily diffused in our apartments, the use of "Pulmonic" candles (which are procurable at chemists) is to be recommended preferably to other illuminants during the prevalence of cholera or other infectious diseases, more especially in temporary lodgings, of the sanitary condition and surroundings of which we cannot be certain.

—I am, Sir, yours obediently, Alfred Wright.

22, Old Burlington-street, W., Aug. 23, 1884.

MALE DRESS REFORM.

Sir,—In concluding my reflections on male dress, I find there yet remain for consideration the *braccæ* of the ancients—our trousers. The Latin word is the same as the Scottish breeks and the English breeches. Corresponding terms are used in all the Northern languages. Also, they say, the Cossack and Persian trousers of the present day differ in no respect from those which were anciently worn in the same countries. In ancient monuments we find the above-mentioned people constantly exhibited in trousers, thus clearly distinguishing them from Greeks and Romans. Trousers were principally woollen, but Agathius states that in Europe they were also made of linen and of leather. Probably the Asiatics made them of cotton and of silk. Sometimes they were striped and ornamented with a woof of various colours. The Greeks seem never to have worn them. They were also unknown in Rome during the republican period, and in A.D. 69 Carcina gave great offence, on his march into Italy, because he wore *braccæ*, which were regarded as barbarous garments. In the next century, however, they gradually came into use at Rome, but they would appear never to have been generally worn, it is recorded of Alexander Severus that he wore white braccæ and not crimson ones, as had been the custom with preceding emperors. The use of them was forbidden by Honorius, so that we see highly civilized nations refused them. Remembering the many graceful coverings for the legs that had preceded this costume, the English especially have the best reason in the world for not concealing the shape of their legs, which, as a nation, are straight and muscular, and more worthy of hose, knee-breeches, and tights, in all their variety of colours and designs, than any other people. Trousers, as now made, are not permitted to remain close all the length of the leg, but full in the most hurtful lines from the knee to the foot, concealing the ankle. Every detail, down to the unfortunate foot itself, has been most successfully carried out; and to the foot so fatally that we may say there hardly remains a perfectly grown one where shoes and boots as of late years supplied have been worn. Toes are ornamental as well as useful for gripping in progression and if not required to be seen are not therefore to be so cruelly driven one on the other or humped with corns and bunions. Enough of this subject has been said by very many writers, and we only know for ourselves that if we look into the form of the shoe or sandal enclosing a well-grown foot as seen in any *antique*, and then at a fashionable shoe-maker's, there is but one word for the modern foot—*deformation*. The remedy for all these shortcomings in our dress of the day is, to seek till we find an enthusiasm of wealth, and interest in the movement: to win it, or create it, by agitating, that the high places of the land may be brought to listen to us and help us by experiment. We require *garbs appropriate* to different *trades* and *professions*, and in which these trades may be healthily pursued. Such garments would soon be found, and a comparison would bring about the unanimous *wish* for a fine new costume, or the revival of fine old one worthy of a nation, that would ever progress int his as in all things now and in the future.—I am, yours, &c.,

Reformer.

QUERIES AND ANSWERS.

We would direct the attention of our correspondents to the fact that, owing to the necessity for sending Health to press early in the week, answers to queries cannot, as a rule, appear in the succeeding number of the journal. Every effort is made to secure punctuality in the replies, but we must ask the occasional indulgence of our readers, owing to the large amount of correspondence, which requires assortment and reply.

We must also request correspondents who write enclosing stamps for copies of Health, to address their inquiries to the Publisher, *and not to the Editor.*

GENERAL.

A. T. G.—There can be no question of the truth of the statement. The matter has been experimentally proved both in this country and in America.

George A.—You mean the "Reversible" boot made by Mr. Branch, 87, Bethnal Green-road, London.

C. B. J.—Dr. Andrew Wilson's "Manual of Health" is in the press. It will be published by Messrs. Longmans & Co. Yes, the book will be illustrated.

Antony.—The "rods of Corti" are parts of the internal ear which are believed to each vibrate in response to a particular note, and thus to give us the sensation of "tone."

T. Q.—1. You will find the information you desire in a forthcoming article on "Dreams," in the *Gentleman's Magazine*, by Dr. Wilson. 2. Published by Messrs. Churchill.

Annie Corsar.—You would have no difficulty in studying for the examination at home. Many candidates prepare themselves in this way.

B.Sc.—There are papers by Dr. Klein now publishing in the *Practitioner* which would help you. The papers are illustrated.

James Reid.—Only a few are left. Apply early.

Intro.—Yes; there is such a "closet." See our "International Health Exhibition" Supplement for last week.

Bent.—Sulphurous acid is H_2SO_3, while sulphuric acid (or vitriol) is H_2SO_4. The former is liable to oxidise (*i.e.*, to gain the additional atom of oxygen) if kept long. It ought to contain 9·2 per cent. of sulphurous anhydride. It is antiseptic, and, in the form of the gas produced by burning sulphur, is often used for disinfecting rooms.

T. B. O.—*Emblicæ Fructus* is Emblic Myrabolan Fruit, a preparation used in India as a tonic and appetiser. The fresh fruit exists in the form of a fleshy pulp enclosing a nut.

Alice G.—Poisoning by mushrooms should be treated by giving an emetic of mustard and water, while stimulants (brandy or sal volatile), warmth to the extremities, and twenty drops of the tincture of belladonna in water may also be administered. Castor oil should also be given as an aperient.

Tricycle Replies.—B. T. The remaining makes will be duly noticed in a future article.—Andrew Gaine. We prefer the Sociable to the Tandem. Yes; the Meteor (40-in. wheels) has done most excellent work.—C. Lusk. Your stockings are probably at fault. Wash the feet in salt and water (use Tidman's Sea-Salt), and apply vaseline to the excoriated surfaces.—Axle. Distance probably too great for one day's ride.—Thomas Baird. 1. Wait until the wound has thoroughly healed. 2. Not known to us. 3. See advertisement in Health.—Tempus Fugit. Any of the makers will give you full particulars.—G. C. O. About £27 or £30.

Gustav.—We do not see any reason why you should not be successful. There is great competition, as you must know, but a good article of the kind you describe should make its way.

Robert Taylor.—Cost about £7 or £8.

C. B.—Place of meeting for next year has not yet been fixed, we believe.

Candid Friend.—The price, you may be sure, was not adopted without grave consideration, and without a large experience of the market catered for. It suits very well. Thanks for your letter. There are many examples of great success at the same price.

SANITARY.

G. B.—We believe the estimate of the amount of sewage of the Thames was placed at 64,240 tons annually (or eighty-eight tons each tide) by Sir J. Bazalgette in 1878.

Alfred Howe.—Action is usually taken under section 126 of the Public Health Act. There is no dubiety regarding the offence in question.

Beta.—There is no doubt that powers exist; but no medical officer would for a moment insist on removing your child to a hospital under the circumstances you name. To do so would not involve a gross breach of medical treatment, but would be dangerous to the child, as well as unnecessary.

T. H. N.—Use Sanitas or carbolic acid. A Vaporiser is made by the Sanitas Co., and by Messrs. Calvert, of Manchester, for these disinfectants respectively.

Bee.—Certainly your arrangements are highly faulty, judging from the sketch you enclose. You are in great danger of sewage-contamination as things stand. Have a qualified inspector or a good sanitary plumber in, and then report matters to your landlord.

Charles Gay.—The closet you name is a very good pattern.

Alexander.—1. Use the Anti-Moth Paper (see notice in Health No. 72). 2. We have no experience of the disinfectant you name; it is not well known.

Ixion.—The ventilation in your scheme is deficient. You would suffer from "blow-back."

MEDICAL.

Apricot.—You will find the more urgent symptoms of which you complain will only leave you after you have gone for a complete change of air. Try what a holiday in a bracing place will do—resting, of course, and avoiding all unnecessary fatigue. Take for a time a teaspoonful of Fellows' Syrup of the Hypophosphites, in a wineglass of water, thrice daily, an hour before meals, as a tonic. Discontinue all injections. If not bettered in a few weeks, write again. For the other ailment, take the following mixture for a week at a time, allowing an interval of a week to elapse between each period of taking the medicine:—Iodide of potass, two drachms; infusion of Calumba, six ounces. A dessert-spoonful thrice daily.

J. C. M.—Don't be morbid or over anxious; and, above all, do not be foolish enough to lay to the credit of the past any little ailments you may now possess. Again, you need have no fear or dislike to consult any medical man; doctors are too well aware of all the circumstances of life to judge either hardly or harshly of such a case as yours. So far as your health is concerned, we advise you to limit your smoking, to try cold sponging each morning, to avoid stimulants, and especially to avoid taking fluids late at night. The tonic recommended above to "Apricot," should be taken by you for a short time. Let us hear how you are after a trial of this advice. Yours is not a case for any drugs beyond the tonic above prescribed.

Robertus.—Try the mixture prescribed to "Anxious Inquirer," in Health No. 73; and eat one of Bragg's Charcoal Biscuits after your meals. Exercise care in your diet; and avoid all acid substances. Rest after meals is essential. If not bettered, write again.

F. L. W.—Let the patient take Morson's Pepsine with her food (as directed on the bottle); and let her food be very light—soups, fish, milk, puddings, and little meat—for a time. Avoid all stimulants, which only increase the mischief. Strong soups made with Brand's Essences, or Carnrick's Beef Peptonoids, should be given. If there is acidity, see advice to "Robertus" above. The pimples will disappear when the indigestion is corrected. Rest after meals is necessary.

Scotch Thistle.—What you complain of is really a sign of health. Only quacks will say otherwise. You are quite well in every way. Simply avoid constipation, by eating fruit and vegetables, and take a cold sponge bath each morning.

November.—We sympathise with you, mostly because we regard you as having been needlessly frightened. The two latter opinions you had were correct. We should say you suffer now from no ailment of the kind; but merely as a safeguard, and to obviate the symptoms you now complain of, we should advise you to take for a short time the iodide of potass mixture above prescribed to "Apricot." Let us hear how you are in a few weeks; meanwhile, avoid all stimulants, and look well after your general health.

Liber.—You must wash the part daily; no cleanly person would neglect such a duty. Add a few crystals of boracic acid to the water used in washing. We enjoin absolute rest from all exercise of the kind you name for some time. Take for a time ten drops *Fer Bravais* in water thrice daily; eat apples, stewed prunes, and like fruits. Don't let your mind grow morbid by dwelling on your ailments, which are more fancied than real.

James H. Burston.—Dumb-bells and rowing, with trapeze or swing-bar exercises, would suit you. Be careful not to overdo such exercises, however. Your hours are long—13 hours a day is too long a time for labour. Tricycling might help you also.

Infelix.—The dye you name does not injure "hair or brain," but it requires care in application, and should only be prescribed by a physician accustomed to treat hair-diseases. We can send you address of such on receipt of stamped addressed envelope.

E. S. Hallison.—Try the effect of giving up tea and coffee for a time, and eat fruits and vegetables as part of your dietary. The symptoms indicate digestive derangement—nothing more. Try first the effect of 15 drops *Fer Bravais*, in water, thrice daily, half an hour or so after meals.

Omega.—The treatment you are undergoing is, to our mind, ill-adapted for your case. You are now apparently being treated as if you required starvation. What you need, in our opinion, is, firstly, pure air at a bracing seaside resort, plain food, cold sponging each morning, avoidance of fluids save at night, moderate open-air exercise, and the tonic prescribed to "Apricot" in present number of Health. By your own account, the severe treatment you are undergoing fails to effect the cure of your ailment, which, by the way, you are evidentally inclined, mentally, to brood over. If you will take our advice, give up the treatment you are undergoing, which is lowering and depressing you, go to Yarmouth, Margate, Ramsgate, or Broadstairs, and adopt the means above indicated, you will "renew your youth." We forward you address of a reliable physician as desired.

Dawley.—Are the veins of your leg enlarged? It is probable that standing so much may have affected you. Try the effect of hot salt bathing (add Tidman's Sea Salt to hot water) applied to the leg at night, and then rub in warm oil or Vaseline. If not better, write again.

A Subscriber (will please adopt a more distinctive name in future).—No need to be alarmed. Simply use cold sponging each morning, avoid fluids late at night, and take moderate open-air exercise. Above all, don't let your mind get morbid. What you name is common in healthy persons.

R. H.—The case you enclose, and the other cases you name, of animals having been ejected from the stomach after a prolonged residence in that organ, are simply fables. You don't suppose that the gastric juice of the stomach would leave any such objects untouched, and animals accustomed to a non-parasitic life could not suddenly become parasites, as you seem to think. These stories are simply "old women's tales," for which no evidence, which any rational being would accept, is ever forthcoming.

W. Phillips.—No risk, in our opinion, would be entailed in such a tour. The locality is perfectly free from cholera, and no cases have occurred nearer than Paris. By all means do not let the "scare" prevent your tour.

Simplex.—Try the tonic recommended to "Apricot" above, and give up smoking entirely. The latter habit is the cause of your troubles.

B. Gill.—There is no reason why you should not enter such a profession. The deformity you name is no barrier to success.

Copia.—Let the patient continue the tonic for a while; taking only two doses daily. Light soups and puddings, &c., will be suitable; unless a vegetarian diet agrees well, it should not be taken in this case. Tricycling would be more suitable than bicycling; but the exercise should be in strict moderation in any case, and should not be allowed to induce fatigue.

Cincinnati.—You are only alarmed needlessly, and what you regard as serious effects only arise from you allowing your mind to dwell too much on your past, which has nothing whatever to do with your present state. You are really quite well—only quacks will attempt to persuade you to the contrary. You merely require cold sponging each morning, to avoid fluids late at night, to see to the ventilation of your bedroom, to take moderate out-door exercise, and to take fifteen drops *Fer Bravais* thrice daily in water, an hour or so after meals. What you complain of is often seen in robust health.

An Earnest Seeker.—The belt might do good, provided your case is adapted therefor. We may add that we have known it do good in similar cases. We advise *absolute* rest (on sofa or in bed) at the time you name. Stimulants will do no good. Injections of tepid water may aid you also, and twenty grains bromide of potass might be taken in a wineglass of water when the pain is severe. For the rest, in a case like yours, a medical opinion, obtained from a physician of eminence, is your only source of relief should your suffering continue; and we earnestly advise you to obtain such advice if you do not recover completely. There are conditions present in your case which can readily be set right by a competent physician. Glad to be of any further assistance.

An Anxious Mother.—1. Show the boy to a qualified surgeon, who alone can determine if the deformity can be remedied. Dr. McEwen, of Glasgow, is an authority on such deformities. 2. We should prefer the room with the high ceiling, decidedly; but you should remember that unless the room is very large—much larger than any ordinary bedroom—the number of persons sleeping therein is excessive. See to the ventilation; raise the bottom sash of the window four or five inches by resting it on a piece of wood running the whole length of the sill, so that air can come in between the sashes, and see that the chimney is kept clear and open.

Omoa.—1. The boy should be taken to the Dispensary for Skin Diseases in Glasgow. It is evident there is some hair-disease

[*Continued on page* 352.

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TESTIMONIALS.

August 22nd.

MISS CARLINGFORD writes:—"I have much pleasure in stating that I purchased one of your Ammoniaphones some time ago, and have used it daily. My experience of it is that it has caused my voice to become stronger with much improvement in tone, flexibility, and facility in overcoming the difficulty of the breaks between the registers. I also consider it a most valuable instrument for sustaining the voice during prolonged vocal exertion."

MADAME LOUISE LEIBHART writes:—"I have pleasure in stating that I have given your Ammoniaphone a thorough trial on myself and pupils, and am satisfied with the result."

"I have seen and used the Ammoniaphone sent by you to Mr. Henderson, of this town. Before inhaling the artificial air I tried my voice. I sang 'A' with perfect ease and fulness. After three inspirations I again tried my voice, and sang 'C' sharp with the same ease and power that I had previously sung my 'A' natural."—LISA M. MORGAN.

NOTICE.

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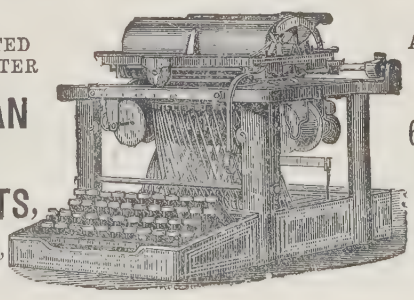

CAPITAL AND SMALL LETTERS.

BEEMAN & ROBERTS,

Sole Agents,

6, King St., CHEAPSIDE, LONDON.

present which requires careful examination and treatment. 2. The pulse of a man beating regularly when he is at rest, from seventy-two to seventy-five per minute, is a normal pulse. In your case the symptoms you name probably arise from indigestion. Rest after your meals, and look to your digestion generally.

Henry McC.—The extract from the *Echo* you send contains views utterly at variance with correct physiology. According to the writer, the stomach requires no rest! What is correct is simply the fact that a very light repast eaten before going to bed will often cause sleep, in the old especially. But that heavy suppers, and so forth, are injurious, admits of no dispute.

Christchurch.—Try the effect of fifteen grains bromide of potass taken in a wineglass of water at night for the symptoms you name. Cold sponging before retiring to rest would be likely to do good also. You might try the effect of a little good claret at meals, and drink freely of potass-water, avoiding fluids late at night.

Alex. Gardner.—No advice can be given save that ordered by your medical man. Trust him fully.

A. L. O.—There is not a trace of the poison you name in the preparation. You must have mistaken the name of the substance.

Eliza G.—Try a little Lamplough's Pyretic Saline in the morning for a time, and be careful as to diet. Rest is also necessary.

G. H. Gawler.—No need to despond. Use cold sponging each morning; avoid taking fluids and suppers late at night; sleep on a hard mattress; avoid constipation; food to be light and non-stimulating; and a teaspoonful of Fellows' Syrup of the Hypophosphites to be taken in a wineglass of water, thrice daily, an hour before meals. You have evidently been frightened and alarmed by quack literature. You will get well by attending to above directions.

H. L. Weaver.—In such a case as that you name, only a surgeon can be of any service. The boy must be examined from time to time, his progress watched, and apparatus supplied. As your means are limited, why not arrange for the lad's admission to a hospital for the treatment of deformities, &c.? He evidently requires tonics, such as cod oil and iron; but hospital treatment seems to us your only resource.

Nomen.—1. Varying periods; probably the voice sets, after "breaking," in a few weeks at most; but its full tones are not developed, of course, till later on in life. 2. No: simply attend to the general health. 3. Simply good food, a fair amount of exercise and a good allowance of sleep and rest.

S. S. C.—Use about half a wineglass of water, no less, with the powders. Give up shaving for a day or two, use tepid water and soap for washing, and apply pure vaseline to the skin at night.

Sigma.—We should advise you to have the head shaved, or to keep the hair cut very close. The probability is, you suffer from a mild form of ringworm. Use sulphurous acid, as before, as an application, attend to cleanliness, washing the head at least twice a week, and take *Fer Bravais*—fifteen drops in water thrice daily—as a tonic.

Caburn.—Yes: hot salt baths at night, with cold sponging and brisk friction with the loofah, will do good. You must, however, attend to the state of the bowels, particularly, otherwise your ailment will not disappear. Try any of the Cascara preparations mentioned it Health No. 63, in our article entitled "A Valuable Remedy." If not bettered, write again, describing diet, &c., more fully.

G. R. H.—Are you sure your vegetarianism is agreeing with you? Take our advice, and give a moderate mixed diet a fair trial. You should bear in mind that vegetables require a vast deal of digestive power, and this you evidently do not possess. Try a course of fish, light soups, milk, puddings, &c., and give up vegetarianism, which does not agree with every person. What you say of the medicine recommended you is incorrect. It is not a "patent" medicine, but one recommended daily in cases like yours. Your cure lies in a wise rearrangement of your food.

W. O.—Give up the tonic, and try cold sponging with a wet towel or sponge each morning. You do not say how often your special "ailment" troubles you, but we suspect you are only alarmed, and that needlessly. Let your food be light, and take no stimulants or fluids late at night, and see that you sleep on a hard mattress, and that your bedroom is airy and well ventilated.

Retina.—Don't be morbid; there is no connection between your past and present states. What you require is to give up smoking—we have heard complaints like yours in cases of excessive smoking—and take fifteen drops of *Fer Bravais* as a tonic, thrice daily, in water. Rest the eyes completely for a time, and see that you have plenty of fresh air. What you complain of is probably due to a loss of tone, combined with excess in tobacco. You will get well by attending to your general health. Let us hear how you are in a week or two.

W. H.—What you complain of is perfectly natural in most healthy persons, and whoever told you you were in ill-health (on that account) was guilty of a piece of downright quackery. Who was the "surgeon" you consulted? You have no need to fear. Simply follow the advice given above to "G. H. Gawler," and you will get quite well in time. See to your teeth and digestion, of course. Use camphorated chalk and a moderately hard brush, night and morning, for the teeth; avoid constipation, eat fruits and vegetables, and above all be cheerful in your mind, and don't consult any of the quack fraternity.

Self-reliance.—Eat one of Bragg's Charcoal Biscuits occasionally, and take the mixture ordered to "Anxious Enquirer" in Health No. 73. If not bettered, write again. Food should be very light for a time. Dr. Robinson's book on "Baldness and Greyness" is published by H. Kimpton, High Holborn, London, W.C.

Energy.—Try the effect of a little additional open-air exercise, such as quiet walking; and look well to your food. See that you do not fast too long between hours of work; and rest after your meals. Leave off potatoes and other starchy foods for a time; eat lean meat, soups, &c.; fat need not be discarded. Use no stimulants; and make vegetables and fruits part of your dietary. Take ten drops *Fer Bravais* thrice daily, in water.

P. M. Cooke.—The apparatus of Politzer you allude to, is not sold in this country, as far as we know; but an inquiry addressed to Messrs. Khrone & Sesemann, Duke-street, Manchester-square, London, W., might afford you definite information on the point. Politzer's apparatus, of another kind, has long been in use by ear-surgeons, and any aurist will show it you.

Determined.—It appears to us that you are somewhat overworked in your profession. Is not this idea correct? And if you are constitutionally nervous, you will, of course, suffer additionally. Our advice to you is to continue the tonic for some time (at intervals of, say, three or four days; it is not to be continuously taken). Diet to be plain. Revalenta and like preparations may be taken, and tea especially to be restricted, or given up entirely. Cold sponging each morning is good (add Tidman's salt to the water), and, for the relief of constipation, take any of the Cascara Bark preparations (see article in Health No. 63 entitled, "A Valuable Remedy"). After these have restored digestive action, trust to fruits and vegetables for inducing regular habits. Meat diet should be taken, but mostly in the form of strong soups, &c.; white fish (boiled) will be beneficial also. The other symptoms of which you complain are due to nervous strain, and these alone show us you require rest and freedom from worry. Glad to advise again, if necessary.

Siccalif.—Your best plan of treatment is rest, drinking freely of barley water, and giving up all stimulants. If not bettered, write again. To your other questions we reply as follows:—1. No, not necessarily so; only strong mineral injections are likely to cause such a result in ordinary cases. 2. They might cause inflammation, but very rarely. 3. No; only a sign of a little irritability, which rest and weak injections of Condy's Fluid and water (one to forty or fifty water) will cure. 3*a*. No. 4. Yes; should be given up at that time.

W. S. S.—1. The mixture you name would do no good. Try Allen and Hanbury's Tonga, which is a specific for neuralgia. 2. Either filter may be recommended. Go and see the new filter of Mr. Sawyer, to be seen at 4, Adelaide-place, London Bridge, London, E.C. 3. You can make your own soda-water by employing a gazogene, to be had of any druggist. 4. We fail to see any advantage in that coffee over the ordinary article. 5. You had much better be advised to take *Fer Bravais* alone, to eat nutritious food, and to take a fair amount of exercise.

Alpha.—Don't trifle with such an ailment, but see a surgeon at once regarding it. He alone can advise you as to the treatment and the nature of the swelling.

D. R.—Take cod-liver oil after meals (a dessertspoonful) as a tonic, and allow a small piece of borax, the size of a pea, to dissolve in the mouth, when hoarseness is present. You will find a change of air to a mild seaside resort for a time, will do you good.

Pensoroso.—See and follow advice to "G. H. Gawler" in present No. of Health. No need to be alarmed.

J. K. H.—You have probably been rendered a little morbid by reading quack literature—the statement to which you allude as given by the Glasgow quack, being an absolute absurdity. All you require to restore you is attention to your general health. Give up all habits which you yourself know are prejudicial to health; and for the rest follow the advice given to "G. H. Gawler" in present No. of Health. Above all, steer clear of quacks. Give up smoking, if a smoker; limit your tea and coffee; and avoid constipation. Write again if not bettered.

Cymbax.—1. Try the Montserrat Lime Juice as a summer drink, diluted with water. 2. Not known to us.

Alfred.—The Samphire Soap of Messrs. Field is that you mean.

HEALTH

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, SEPT.* 12, 1884.

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Notes by the Way

"Health is the foundation of all our physical happiness."—*Herder.*

Various correspondents, writing to the *Times*, warn the public against the injurious effects of the aniline dyes that are now so largely used to colour fabrics of all kinds. This is not a newly-discovered danger to health. On the contrary, sanitarians have long been as fully alive to the danger which may ensue to health from the use of the dyes in question as to that which results from the use of arsenical wall-papers. Cases of intractable and often dangerous skin-diseases continually occur in the practice of specialists from the use of clothing dyed with these aniline colours. Mr. Startin's exhibit (recently noticed in Health), to be seen in the Health Exhibition, should attract attention at the present juncture. One of the *Times*' cases is instructive in its way, because it is typical of a common health-danger from the use of aniline dyes. A lady, after wearing a pair of red-silk stockings, found the colour transferred to the skin. Her feet became highly inflamed, and on a physician being consulted she was told her ailment arose from the dye of her stockings having literally poisoned the skin. The danger to which we draw attention is all the more deserving of public notice on account of its common occurrence.

An individual known as "the Bear Man," is now being exhibited in London. He is on his way to America, where he is to remain under the care of the famous showman, Mr. Barnum, for some time. If we mistake not, this lad—for he has by no means attained adult age—is the child who with his father was exhibited some years ago in England and Scotland under the name of the "Kostromas." The designation "Dog Man" was then given to the father, whom we had the opportunity of examining in Edinburgh. The parent's face was completely covered with a thick coating of greyish hair, through which eyes and nose protruded, giving to the human physiognomy the exact appearance of a Scotch or Skye terrier-dog. The child, who was then a few years old, had his face covered with silky hair of a light golden hue. The curious pair were Russians, and derived their name of "Kostromas" from the province of that name, to which they belonged. The name Theodor Jewitchejew has been bestowed on the lad, who now figures as the "Bear Man." He is said to speak German, and to be able to say a few words in English and French. His father and himself were found in one of the Russian Government forests. The parent was a thorough savage, wild and untutored. Nothing could be ascertained respecting his antecedents.

Of course, all such cases of "showman's wonders" are simply to be regarded as examples o deviation from the normal type of human structure. The so-called "freaks of nature" are only illustrations of the workings of the laws which produce abnormalities or departures from the usual state of things in one case and disease in another. In the case of the "Bear Man" we simply see a case of what naturalists call "reversion"—that is, a return to a lower rank of existence. The high development of hair on face and body is a feature proper to lower life, as it is one absent from the natural conformation of man. Cases of allied character to that of the "Bear Man" and his father are by no means wanting in the records of medical curiosities. There was a well-known Siamese hairy family, whose peculiarities were transmitted to their offspring, and "Krao," the little girl recently exhibited as a "missing link," unquestionably shows an approach to this deviation—if, indeed, she is not simply a member of this latter group. Darwin mentions the fact that idiots are often very hairy, and there is little doubt that the hairy father and son referred to by the great naturalist in his "Descent of Man" as having been described to him by Professor Brandt, of St. Petersburg, are the individuals to which we have alluded.

That this latter view is correct is an idea strengthened by the curious fact mentioned by Darwin, namely, that this excessive hairiness of body is often associated with deficiencies in the teeth. The "Bear Man" has defective teeth-development. Although this fact, doubtless, depends upon a distinct law of growth, it is difficult to account for the poorness of the teeth (which are related to hairs, as skin-structures), save on the theory that excess of growth in the hair would probably result in deficiency of growth in the mouth-furnishings. Excess of growth in one direction, in other words, is counterbalanced by want of growth in other and related parts. It may, lastly, be noted, that, as remarked by Sir James Paget, hairs of a fine, or of ordinary texture, may become developed through diseased or allied action, into thick-set, long, and coarse hairs. It is possible, therefore, that to some tendency of this latter description we may owe the beginnings of the peculiarities we see transmitted in the case of the "Bear Man" now at our doors.

The recent cholera riots at Naples, in which doctors—and even priests who endeavoured to quiet the panic—were accused of poisoning the people, present a melancholy example at once of the fruits of superstition and of an utter ignorance of all health-laws. The *Echo di Bergamo* says:—

> The prevailing superstition is incredible, and not confined to the people only. Every one shares it. Physicians are distrusted. Medicines are suspected. We know of a place where people are ready to swear that the district doctor receives twenty lire (sixteen shillings) for every cholera patient who dies under his treatment, and that when his victims amount to a thousand he is rewarded with a pension! The result of this deplorable superstition, of which we could give many more examples, is that not only is the physician never sent for in time, but when he arrives his services are refused. Moreover, as it is generally the priests who send for him, the suspicious friends of the patient, knowing this, decline to

call in the priest. Both priest and physician generally reach the bedside when the patient, quite capable of being rescued a few hours earlier, is past prescribing or praying for.

* * *

When, on the authority of another Italian newspaper, we are told that of thirty millions of Italians more than sixteen millions can neither read nor write, the moral which such a story points for the benefit of the Italian Government is not difficult to discover. Where common education is neglected it is worse than useless to expect to find either the practice of health-laws or the absence of panic when plague appears. How much, not in health alone, but in actual hard cash, such a country as Italy loses through the neglect of ordinary culture may perhaps be better imagined than described. Our own sanitary arrangements, equally with the education of our masses, may be susceptible of much improvement, but we ought, at least, to feel supremely thankful that we are at least two centuries ahead of Italy and Spain in both respects.

* * *

We are pleased to note that the memorial-stone of the Hawick Cottage Hospital was laid on the 30th ult. by the Earl of Mar and Kellie. This enterprise, it may interest the readers of Health to know, arose out of a suggestion that the surplus proceeds of a course of "Combe Lectures," given in Hawick by Dr. Andrew Wilson, should be applied to the foundation of such an institution. Hawick is to be congratulated most warmly on the success which has attended its endeavours to provide for the town and district a hospital in which the sick and hurt can be attended so as to obviate the necessity of conveyance to Edinburgh. The funds subscribed amount to nearly £3,000. The building is to cost some £1,600. It will contain fourteen beds, with space for additional ones.

* * *

The present season is the "business period" of that active little mite, the harvest-bug, whose attentions to the arms and legs of country visitors are anything but gratifying. Mr. Startin says that camphorated oil, rubbed into the legs and arms, will generally prevent the attack of these pests. A lotion composed of one drachm of spirits of chloroform and camphor, and two grains bichloride of mercury, added to four ounces of rose-water, is described as a good application for the irritation of the bites. This lotion should be duly labelled "poison," and "for external use only." We should imagine Pixene Soap would prove effectual as a preventive of the bites.

* * *

Ship-surgeons and their qualifications are likely ere long to be made subjects of official inquiry, and the matters in question are such as, in the interests both of the sea-going public and of the medical men attached to the marine service, should be seriously and carefully investigated. We are continually hearing complaints of the inefficiency of ship-surgeons, but it would seem that these officers have, in their turn, grounds of complaint in the comparatively poor pay they receive, and in the treatment to which they are subjected in respect of their position and status when at sea. Of course, poor pay is no excuse whatever for inefficiency in the surgeon personally, but sparse remuneration can only attract men whose qualifications and experience are of inferior kind and limited description. The remedy lies with steamship companies and owners. If they will offer fair rates of pay they will command the services of good men. If they content themselves with offering inadequate salaries, they will only be able to engage either inexperienced lads, or practitioners who have not been able to succeed in establishing themselves comfortably and honourably on shore.

Original Essays

"Life is not to live, but to be well."—*Martial.*

SLEEP-WALKING AND RELATED CONDITIONS OF MIND.

By Dr. Andrew Wilson.

IV.

In connection with the elucidation of the ways and works of sleep-walkers, the well-known case of the French sergeant, related by M. Mesnet, becomes extremely interesting. Here we find actions following injury of the brain to mimic, in an extremely close fashion, the ways of the somnambulist. We may see, plainly enough, that what may occur naturally enough in certain individuals as the result of brain-excitement of one kind or another, may be reproduced before us under the guise of a diseased, or of an artificial, condition of the organ of mind.

The soldier just alluded to was injured in the left side of the head by a musket-ball at Sedan. Immediately thereafter, his right side being paralysed, he became senseless. Three weeks afterwards he awoke to consciousness in the hospital at Mayence. For a year the paralysis of the right side continued, but his condition improved under treatment. Curious periodical aberrations of the intellect, however, began to appear about three months after his mishap. These latter symptoms occurred at intervals, varying from fifteen to thirty days, and they lasted from fifteen to thirty hours. His abnormal periods were therefore short, as compared with his normal ones. The peculiarities of his abnormal period were very marked. His eyes were wide open; his movements were regular but automatic; he went wherever he was directed; when he stumbled over an object he felt about for the obstruction and then passed on one side; and he ate and drank as usual, and rose and retired to rest at his accustomed hours. More curious was the fact that pins might be run into his body without eliciting the slightest exclamation of pain. To electricity he was equally insensible; he heard not, but rarely saw, and did not distinguish what he ate or drank. His sense of touch alone was present, and that in an elevated degree; but, curiously enough, when placed in an appropriate position, he might be made automatically to express in pantomime the movements of reconnoitring or skirmishing in an enemy's country. He could hum a tune, and sang from a roll of paper placed in his hand as if it were a vocal score; and, as refreshment, swallowed between his songs, without grimace, a mixture of strong vinegar and water. That the sense of sight, although deficient, yet played a part in directing the abnormal life of F., was apparent in an experiment of Dr. Mesnet's, in which, when engaged in writing a letter, a screen was interposed between his eyes and his letter. The sergeant proceeded for a little time with his letter, finally, however, coming to a halt as his words became illegible, but without exhibiting a sign of annoyance; and when sheet after sheet of a superimposed series was withdrawn as he wrote, so that each sheet contained but a few words of his letter, he continued to write on, signing his name on the last sheet as if it contained the whole of his communication, and correcting the imaginary writing which he supposed was represented before him. His tobacco-pouch being removed after the manufacture of a first cigarette, he neither saw nor smelt the missing object, but when it was placed in his hand the automatism of his nature asserted itself, and another cigarette was duly manufactured.

The sergeant was also noticed to come in contact with a table, to pass his hands rapidly over it, and then, finding nothing, to open the drawer of the table, with the result of discovering a pen therein. The touch of the pen apparently awoke the idea of writing. In the drawer he found paper and an inkstand, which were duly placed on the table. Taking a chair, he sat down and began to write a letter to his commanding officer, suggesting that he should receive a medal for the bravery he had displayed in battle. The letter was written in an incoherent and confused fashion; but, adds the account, not more so than the letters he was accustomed to write in his lucid intervals. Then succeeded the experiment of interposing a screen in front of his eyes, as above detailed. While engaged in writing, water was substituted for ink. He wrote on so long as the pen made markings on the paper, but ceased when it failed to make characters. He then wiped the pen, rubbed it on his coat, and began again. The same result accruing, he made another, and, of course, unsuccessful attempt to adjust his writing materials, but the ink-pot itself seemed entirely to escape his scrutiny. That sight was employed in the sergeant's acts of writing is an obvious fact; but, adds Dr. Tuke, it was as certainly not employed, "except in regard to the particular subject upon which his attention was absorbed, and with which he was brought into relation by the sense of touch." As in the sleep-walker, that sense appeared to receive a singular power and elevation, and to supplant for the time being all other modes of communication with the outer world.

With reference to that part of the experiment in which the sheets of paper were successively removed, it should be added that the sergeant had taken ten sheets, and had written words on the first sheet when Dr. Mesnet removed it. The patient continued to write on the second sheet, as if the first had not been removed, and when the second sheet was removed, after he had written ten words thereon, he finished, on the third sheet, the line of writing he had commenced on the second. The third and fourth sheets having also been removed, the sergeant signed his name on the fifth sheet—which was practically blank—at the bottom of the page.

Now were observed an interesting series of facts. The sergeant was then noticed to look at the top of this fifth (and blank) sheet, and to re-read in his mind, of course, all he had written. His lips moved at each word; he punctuated his writing, and placed commas; spelling his words, and amending them by inserting *e*'s and *t*'s. Each correction corresponded exactly to the word requiring emendation, and to the spot on the special sheet of the series in which he had written it. It is evident that here again we are merely dealing with a form of brain-action allied in the closest possible manner to that of the sleep-walker who, rising from his bed, writes a learned legal opinion in one case, or solves a problem in Euclid in another. What occurred in the unfortunate sergeant as the result of brain-injury is witnessed likewise in the subject of the "acted dream." In both it seems evident that "the image of the writing," as Dr. Tuke puts it, "remained registered, so to speak, in the brain"; or, as Mr. Galton would say, "the writing was visualised," and appeared clear and defined to the "mind's eye," in the brain, which, after all, is the true seat of the sense.

Scott's Midlothian Oat-Flour.—Messrs. A. & R. Scott, of Kingston, Glasgow, and Finsbury-square, London, have prepared a singularly pure and nutritious "Oat-flour," which bids fair to take high rank among the food products which are specially adapted for infants and invalids, and for the use of dyspeptics in particular, whose digestion is weak, and whose stomachs refuse to assimilate foods of ordinary kind.—Ed. Health.—[Advt.]

Before passing to consider the subject of mesmerism, we may glance, by way of close to the present article, at certain facts regarding sleep-walking which may serve to complete our consideration of that special topic. That dreaming plays an important part in arousing the activity of the somnambulist admits of no question. It is the dream (*i.e.*, activity of brain) which sets the body in action. "One girl," says Dr. Tuke, "always dreamt that the room was full of boiling water, and that she was trying to escape from it." "A lady," he continues, "informs me that an act performed by her daughter during sleep was connected with a dream in this wise: She dreamt about a shipwreck, and she awoke finding herself out of bed. In the morning she found she had wrapped a large shawl carefully round the candlestick which was in the chair by her bedside. She thus clearly saw that the explanation of the act lay in her having succoured a shipwrecked sailor, for whom the candlestick had done duty."

As regards *recollection of the acts performed by sleep-walkers*, certain patients remember nothing whatever regarding their sleeping state, while others may partially or even completely recollect their acts. "More commonly," says Dr. Tuke, "if any remembrance survive, the dream is remembered and the motor action is not." He adds, that "the fact that the memory is, in many cases, entirely absent, is one of the most interesting phenomena of somnambulism." What we have to bear in mind is, that in these acts of the brain, in which the lower centres are involved, no consciousness is involved. The Ego — the active, knowing personality of the individual—is really asleep and in abeyance. It is the machine-like parts of the brain, the servants of the intellectual centres, which, taking upon themselves the functions of these higher centres, rouse the muscles into activity, and convert the man, for the time being, into what is practically a human automaton or machine.

CHOLERA: HOW TO TREAT IT.

In Nos. 19 and 20 of Health we gave a brief *résumé* of the treatment of cholera recommended by twenty authorities, which we took from Dr. Domett Stone's "Epitome of Therapeutics." We now supplement that report with the opinions of a few more writers on the subject.

Sir Thomas Watson maintains that when the disease is once fairly formed, medicine has very little power over it, but in the preliminary stage of diarrhœa it is easily manageable. Neglect of the diarrhœa frequently permits it to run into well-marked and uncontrollable cholera; and the employment of purgatives hastens or insures that catastrophe. The proper plan of proceeding, Sir Thomas Watson is convinced, is to arrest the diarrhœa as soon as possible by astringents, aromatics, and spirits.

Dr. Macnamara—than whom few men have had more experience—places great reliance upon opium. In the early stage a pill of four grains of acetate of lead and one grain of opium, dissolved in water, is recommended after each attack of bowel complaint. Rest in bed, a large mustard poultice over the whole of the abdomen, nothing in the shape of food or water, but as much ice as the patient can take. If this treatment fails, three grains of acetate of lead and fifteen drops of dilute acetic acid in water every second hour, with fifteen drops of dilute sulphuric acid in water every alternate hour. If the vomiting continues, a second mustard poultice should be applied, and all medicine omitted for an hour and a half, when a scruple of calomel may be placed on the patient's tongue and washed down with iced water. For the cramps, friction with the

hand, and hot-water bottles to the soles of the feet, legs, and abdomen. After reaction sets in, the patient should not be over-fed. Iced milk and arrowroot should alone be given for some time after reaction, and afterwards beef-tea or liquid meat-foods by the mouth or enemata.

Drs. Guy and John Harley give, in the ordinary run of cases of the preliminary diarrhœa, a scruple of the compound chalk and opium powder three or four times a day, the diet being restricted to gruel or arrowroot made with milk. In more severe cases grain doses of opium with half a grain of sulphate of copper every two or three hours. The stage of collapse is best treated by large draughts of salt and water (three table spoonfuls of common salt and a scruple of chlorate of potash to a quart of water) repeated every quarter of an hour till reaction is established. Reaction should be promoted by warm blankets, hot-water bottles to the feet and epigastrium, and assiduous friction. The patient may be allowed to drink freely of brandy-and-water. In the absence of diarrhœa, occasional doses of castor oil may be given.

A committee of the College of Physicians, consisting of Sir William Jenner, Sir William Gull, Dr. Milroy, Dr. Parkes, Dr. Johnson, and Dr. J. Burdon-Sanderson, recommend the patient to be sent to bed and kept warm, and suggest that ten grains of the aromatic powder of chalk and opium (of the British Pharmacopœia) should be given in half a glass of peppermint-water, or weak brandy-and-water. Large doses of opium or of ardent spirits should be avoided. If the diarrhœa should result from bad or obviously indigestible food, or if the discharges are unnaturally offensive, and attended with griping pain, it would be desirable to give a dose of castor-oil or rhubarb (Glauber's salts and Epsom salts are dangerous) before administering the spirits. The diet should consist mainly of beef-tea or broth, gruel or rice. If the discharges become colourless and watery (commonly termed rice-water purging), and be accompanied with vomiting and coldness, the opiates should no longer be persisted in, and spirituous liquors should be avoided. The patient should be kept strictly in the recumbent position; he should be allowed to drink water freely, and should be abundantly supplied with fresh air. Warm applications should be used to the feet and legs, and a mustard poultice should be applied to the pit of the stomach. Cramps may be treated by rubbing the affected parts with the warm hand.

Dr. Maclean (Inspector-General) gives abundance of water to drink and ice to suck; corrects cramps and inordinate vomiting by the internal and external use of chloroform; applies external warmth and extra bedclothes, if these are grateful to the patient. The treatment may be summed up, Dr. Maclean says, in two words—good nursing.

Drs. Ferrari, Pacini, and Garnier assert that the remedy which was found most efficacious in Italy during the last outbreak was phenic acid, a purified extract of creosote, but destitute of the unpleasant odour of the latter. The following is the formula:—

Rx Creasotæ vel acidi phenici	m.v.
Syr. Limon	℥j.
Aquæ	℥v.

M. Dose.—One tablespoonful every hour, or more frequently if necessary, for the purpose of checking the watery transudation, counteracting the poison of cholera, and preventing detachment of the intestine. Opium was generally superadded when the case assumed the character of genuine cholera.

Drs. Hayden and Cruise, in an elaborate report on cholera, give the details of 197 cases admitted into the Mater Misericordiæ Hospital, Dublin, between Aug. 17 and December 17, 1866. They are of opinion that the disease is strictly preventable by sanitary hygienic measures, and in nearly all cases curable in the stages preceding actual collapse. The treatment Drs. Hayden and Cruise found most successful in the stage of choleraic diarrhœa was sulphuric acid and opium, with sinapisms, external heat, and creosote water. In collapse, they had more success with calomel, given in large doses, than any other medicinal agent.

To Dr. William Stevens we are indebted for a method of treatment by which the mortality from cholera was reduced to about five per cent. of the cases in which that method was employed in the Coldbath-fields Prison in 1848-49. Patients presenting the premonitory symptoms—diarrhœa and vomiting—were removed into a ward where an even temperature was constantly maintained. A seidlitz powder was immediately administered; if sinking was felt without purging, three or four teaspoonfuls of Epsom salts were added to the powder. On these agents acting, plenty of thin beef-tea, well seasoned with salt, was given; if there was any pain a sinapism was applied to the gastric region, and thirst was relieved with seltzer, soda, or pure water *ad libitum*. Most of the cases were thus cured. If, however, cramps, coldness, or sinking of the pulse came on, the patients were considered as cholera cases in the second degree. The following was then administered about every half-hour:—Sodii chloridi, Oj; sodæ carbonatis, ℥js.; potassæ chloratis, gr. vij. dissolved in water. If there was much irritability of stomach, a large sinapism was applied; if much heat or burning pain, an additional quantity of carbonate of soda was added to the mixture. In cases in the stage of collapse, a strong solution of the same salts, dissolved in hot water (100° Fahr.), was thrown into the bowels, and repeated every two or three hours. Sinapisms were also applied to the stomach, between the shoulders, &c.; and in the cold stage, friction with warm towels used. A pure air for the patient to breathe was considered of the greatest importance.

The treatment here named as that adopted by Dr. Stevens is practically embodied in the preparation of the well-known Pyretic Saline of Mr. Lamplough, which was regarded by Dr. Stevens as a convenient method of administering the remedies in question.

Scott's Midlothian Oat-Flour.—There is no preparation which can be assimilated with greater facility than such a flour as this. Those who suffer from indigestion might substitute for their ordinary breakfast materials this flour, prepared according to the recipe given by Messrs. Scott and printed on the tins.—Ed Health.—[Advt.]

Thymo-Cresol.—We are glad to notice that Messrs. Ness & Co., of Darlington, have been awarded a gold medal at the "London International Exhibition" (Crystal Palace) for their disinfectant, "Thymo-Cresol." This is a just testimony to the high efficacy of the exhibit in question.

The evaporation of water from the surface is an important means by which the temperature of the body is reduced and regulated. This will be readily understood when the amount of heat which must be concerned in converting water into vapour is considered. And hence one important effect of clothing. Man is distinguished from animals by his nakedness—by the absence of all means which lessen the escape of heat from the skin—and his clothing in this respect is an artificial substitute for fur and feathers. It not only checks loss by direct radiation, but it also greatly interferes with evaporation.

Personal Health

"Be timely wise;
With health all taste of pleasure flies."—*Gay.*

SMOKING AND HEALTH.

By Dr. Félix Bremont.

This article is not intended for schoolboys desiring to enjoy their cigarettes out of the sight of their tutor, nor for children who try to play the man by taking up one of his faults. It is addressed to smokers, but does not purpose to increase the number of them. Its design is to indicate what precautions may be taken to diminish as far as possible the inconveniences of smokers' glandular irritation; but it affirms the reality of these inconveniences, and declares it impossible to remove them completely.

The first hygienic principle relative to tobacco, is, then, Do not smoke at all; don't smoke at any age. More than one old smoker will agree with me that it would have been good for him if he had never lit a cigar, for he suffers now if he cannot smoke a half-dozen of them in the course of the day. The habit of smoking creates a fictitious want that is, perhaps, more imperative than real wants, and which is a constant trouble to those who feel it. When I have a pressing engagement after dinner, I cut my meal short so as to have time to smoke a cigar; and there is to me nothing to suggest doubt in the story related by Philibert Audebrand or Father Schoëne, director of Louis Philippe's park of Monceaux, who loved two things—his plants and his pipe. From morning till night he lived in the garden, and from morning till night he carried a short pipe in his mouth, which he would not take out for any one. "It may pass before me," said Louis Philippe to him one day, "but to smoke so in the presence of the queen and the princesses!" "Sire," replied Schoëne, "it is stronger than I am. If your Majesty is not satisfied with my service, I shall have to present my account; I shall probably die with vexation over the matter, but it will be with my pipe between my teeth."

Do not enroll yourselves, then, beardless readers, in the battalions of Nicotia. Initiation into her mysteries has painful accompaniments, and her fervent worship brings troubles of another character. Tobacco is smoked in cigars, cigarettes, and pipes. Placed in contact with the mouth, the cigar, which cannot escape some chewing, colours the saliva and charges it with the toxic principles of the tobacco—elements, principally nicotine, that should be carefully rejected. A person smoking only a simple light cigar may, perhaps, see the end of it without spitting, but, if he consumes any number of them, he must spit frequently. This exercise is less indispensable when a cigar-holder is used, and the adoption of such a mouthpiece is recommended by hygiene as a means of avoiding the direct contact of the mouth with the tobacco, and considerably diminishing the inconvenience of smoking. Cigar-holders are made of amber, shell, glass, bone, cherry, birch, lilac, jasmin, maple, and cane. Holders made from the last wood are the best, because they are generally longer than the others, whereby the smoke may become cooled, and because, being very cheap, they can be frequently renewed. Other inconveniences, involving questions of cleanliness, are avoided by the use of the cigar-holder. Too many hands touch the tobacco while it is being manufactured into a cigar for one to be able to say it has not been soiled, and cases of its having been the vehicle for conveying contagious disease are not unknown.

Havana cigars are the best, but how to get them? The coat does not make the monk, nor does the label make a real Havana. We read in the *Journal d'Hygiène* that cigars are bought at very cheap prices at various places in Europe, then shipped to Havana, where they are boxed and labelled and sent back to Europe. According to M. Cardon, the matter is arranged more expeditiously at Hamburg and Frankfort, where cabbage-leaf cigars are sold as real Havanas under the government stamp, which they have acquired the right to bear by being sent out to meet vessels coming in from Cuba, whose arrival in the Baltic or in the Channel has been signalised. The cigars go through the custom-house, get the government mark, and are worth ten times as much as they were before their little excursion. It is a good hygienic precaution to choose dry cigars. The nicotine, being volatile, gradually escapes during the drying process, and the smoker consequently absorbs less of it. The absorption is also less when the smoking is done slowly; but, if one smokes fresh cigars fast and without spitting, his mouth and nervous system become so saturated with the narcotic ingredients of the smoke that, according to Professor Johnston, every kind of pipe becomes insipid to him.

Tobacco rolled up in a thin, combustible substance, which is burned with it, forms a cigarette. Many doctors regard this as the most dangerous form in which tobacco can be smoked. Dr. Barré recently invited smokers of cigarettes, in the journal, *Le Peuple Français*, to observe if they did not, after having smoked ten or a dozen of them, feel a pressure on the left side, with palpitation of the heart. The more we advance in the practice of medicine, he added, and the more we question our fellow-doctors, "the more we are convinced that the abuse of the cigarette is one of the most frequent causes of diseases of the heart." As for myself, I have never observed the troubles noticed by Dr. Barré; but I have remarked others, particularly chest-ache and inflammation of the organs of voice. The irritation of the back part of the mouth and breathing passages probably arises from the habit, common with smokers, of swallowing the smoke. This is a noxious practice, and must be avoided.

In some countries cigarettes are rolled in corn or plaintain leaves; in France we roll them in paper. A great many persons think that the mischievous effects of the cigarette are due to this envelope. I owe it to the truth to say that the accusation has not been established. If the use of the cigarette is really more injurious than that of the cigar, it is probably because in cigarette smoking we have to use tobacco that is more moist, and consequently more charged with nicotine. The question respecting the envelope is not yet solved. The makers of cigarette-paper certainly take great care to fill the public with the idea of danger attending the use of paper of bad quality. They all offer the smoker superior papers of pure fibre. The more refined offer coal-tar paper, to prevent chest-irritation; paper containing iron, as a guard against poorness of blood; and even pepsin-paper, to facilitate digestion. It is all smoked, and that is the end of it. Use any paper you please, gentlemen; the important thing for health, is that you do not use too much. The same recommendation is addressed to the ladies—for there are ladies who smoke; the Society of Public Medicine was occupied with them in 1880. MM. Decaisne, Delaunay, Thévenot, Bouley, Brouardel, and Goyard said some very interesting things on the occasion; but, after a brilliant oratorical display, "richer in arguments than in observed facts," the society wisely concluded that "it was not necessary to conclude anything." That is my position on this vexed question of cigarette-paper.

(To be concluded.)

Healthy Houses

"A happy home must be a healthy home."—*Anon.*

MODERN SANITARY IMPROVEMENTS IN DWELLING-HOUSES.

By H. M. Mavor and D. J. Ebbetts.

THIRD PAPER.

Instead of continuing for the moment with a description of some of the modern and improved appliances, it will be more interesting, and lead to a clearer understanding, if we refer to the good old times, when there were no appliances or systems except of the most elementary description, reminding us of the time when an author was commissioned to observe the "manners and customs" of the inhabitants of a far-off country. After visiting them for a time, he wrote home saying they had no manners, and their customs were dreadful. A certain amount of archæology may invest the subject with a romance which is generally much needed to induce a persevering study, as, following a general rule, when the predisposing cause is removed, the study is frequently allowed to lapse. But we wish to show that a general knowledge of the subject is not only of interest, but it becomes both a necessity and a duty to our neighbours as well as to ourselves, and assumes an importance which we dare not overlook. Much light has been thrown upon the early history of this movement at the recent Sanitary Conferences at the Exhibition, where facts and theories, old and new, were advanced and disposed of according to existing knowledge.

The mediæval military and monastic buildings were fitted with more or less rough-and-ready "latrines" of stone, projecting, as a rule, over the moat; and it is not much more than 100 years ago that the w.c. apparatus became at all general. This absence is still a feature in the East, and also in parts of Italy, and particularly in Spain, which is eminently Eastern in ways and thought. In many towns having a population equal to some of our "county towns" accommodation of this description is altogether wanting, but the deodorising qualities of the hot, dry air usually prevent any serious effect or annoyance. This Eastern tendency in Spain is in many respects very marked, and a knowledge of the country will bring many Scriptural comparisons to bear this out.

But to return to our Western views, we find that the pan-closet and D-trap, which we have shown to be so undesirable, have done duty for two generations, and such traps as were used were far too large for the purpose, and were themselves a nuisance. The drains, also, were constructed of brick, always badly laid and imperfectly jointed, frequently having no proportion as regards size to the work they were required to do, and, of course, were never ventilated. A system of drainage on a large scale was not thought of, hence arose the necessity of cesspools—a temporary expedient at best, and bad at that, as the day for emptying or cleansing them was deferred indefinitely. It is nothing uncommon to discover these cesspools under the floors of many large houses built since the time of Queen Anne, having, perhaps, been covered up and left unsuspected for the best part of a century, working mischief and disaster quietly and insidiously; and when discovered at last, of course the question, "Who would have thought it?" is put.

With the general improvement of the water supply of which the earliest company to start was the Lambeth Company, just 100 years ago, came a more general use of sinks, mostly for scullery and kitchen purposes. The construction or arrangement of these was very faulty, and, indeed, this received attention at the hands of sanitarians only when they had, more or less successfully, settled the proper disposition of the sewage arrangements. The old-fashioned stone sink in the scullery was usually fitted with a bell-trap in the sink, and a large waste-pipe connected directly with the drain. Now this bell-trap is artfully contrived to be quite the worst and most dangerous form for its work that could be invented. Think for a moment what a trap in the position we refer to ought to be calculated to do. It ought to allow the free passage of the greasy, dirty water thrown into the sink, while retaining any large pieces of vegetable, soap, and what-not; it should also allow of the

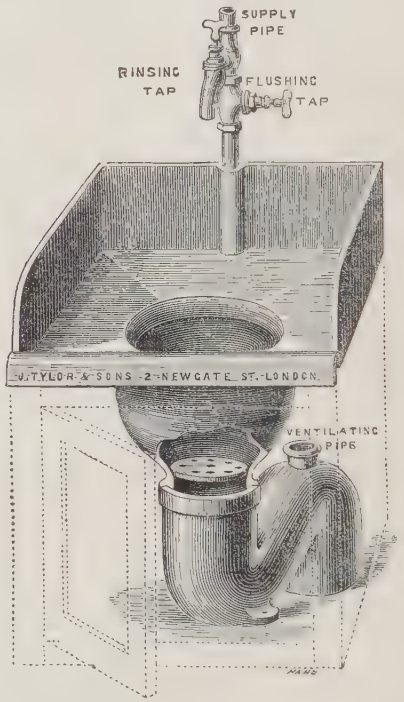

Fig. 1.

grating being cleaned without disturbing the trap. Now the bell-trap effects none of these purposes, it soon becomes clogged up with grease, and when the servant throws back the grating to clean the receptacle beneath it, the waste-pipe is left untrapped, and discharges its fœtid odours into the house. In practice, it happens that the intelligent modern servant, possessing a supreme contempt for smells of all kinds, very seldom troubles herself to replace the grating, and, in course of time, rids herself of all responsibility in the matter, by losing the troublesome thing altogether.

The proper way to fit a stone sink is to select a large brass grating with fair-sized perforations—that which is called a "cobweb grating" being the most suitable—the grating is screwed to a brass frame, and this frame soldered to the stone sink; from the grating a stout lead pipe, 2 in. in diameter, is taken to discharge over a grating

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outside, and on this pipe close under the brass grating a cast lead P-trap is fixed with a cleansing cap, which gives access to the interior. These sink-wastes are often fitted without the P-trap, it being supposed that as the pipe discharges in the open air there can be no need of any trap. Dr. Corfield has very clearly shown the necessity for trapping waste-pipes:—"The waste-pipes of sinks are not proper places for air of any kind to come through into houses, and if you do not put syphon-traps upon the waste-pipes of sinks (immediately under the sink) you will have sewer sore-throat and diarrhœa produced in homes by the fact that during the night a large quantity of the air in these houses has come into them through the insides of foul sink-pipes." If you had to select the opening by which air should be supplied to your house, you would hardly choose the dirty waste-pipe of a scullery sink, and you should, therefore, close that pipe to the passage of air by placing a trap upon it.

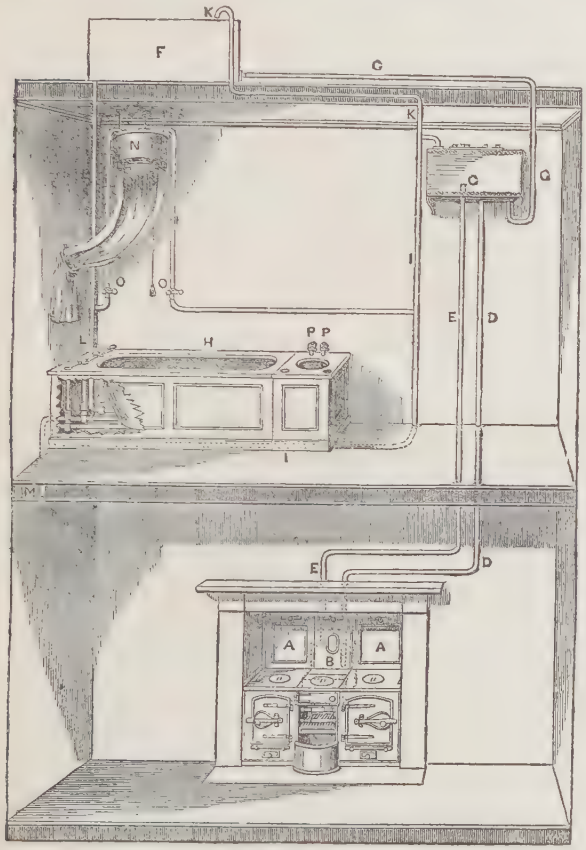

Fig. 2.

There are many other kinds of sinks, but one of the most useful is that illustrated (Fig. 1), which is a housemaid's sink of an ingenious description supplied by Messrs. Tylor & Sons (though somewhat similar articles are provided by other makers). This may be described as a glazed closet-pan and trap surmounted by an enamelled iron sink. A strainer is placed in the pan to stop the passage of soap-brushes or other articles that might be accidentally thrown in. It will be noticed that it is supplied with two taps; one of these is connected with the flushing rim of the pan, so that the latter can be thoroughly flushed after slops have been thrown into it. The other tap is useful for rinsing out the housemaid's pail, filling jugs, &c. A door and framing under the iron sink complete a fitting which is very serviceable and sound, fulfilling all the requirements of its situation.

Fixed baths in houses are being every day regarded more in the light of necessaries and less in the light of luxuries. Mr. Hellyer, in his admirable work on house-plumbing, suggests that in houses of the smallest type a bath could be very cheaply arranged in the kitchen, thus avoiding the expense of carrying the hot-water service any distance, and being cased in with wood, the lid, when shut, would make a broad, useful settle. The simplest and most useful form of bath is of cast-iron, enamelled inside, fitted with two taps fixed at the foot of the bath, through holes cut in the bath itself. This will not only be cheaper and more durable than the usual valves, but will allow of readily filling a jug or can with hot or cold water; and, again, no lead tray under the bath will be required, although with valves this is almost a necessity. In the bottom of the bath, just under the taps, a brass plug and grating should be fixed, and an iron waste-pipe discharging over an outside grating or into an eaves gutter with a P-trap close under the bath. A large overflow grating and pipe should be fixed, discharging as waste-pipe, although where the bath is used with care this may be dispensed with.

Our illustration (Fig. 2), which has been kindly lent by Messrs. Tylor, shows on the upper floor a bath fitted with "shower-bath" arrangements, and with a lavatory basin at one end. The kitchen fire-place is shown below, from which the flow and return pipes ascend to the hot-water cistern in the bath-room, and this, again, is supplied from the cold-water cistern above. That this is an improvement upon the old tubbing arrangement can scarcely be doubted.

Typhoid Fever and Rainfall.—In the last number of the *Archives Italiennes de Biologie* (tome iv., p. 26) is an interesting paper by Professor Louis Pagliani on the "Oscillations of Typhoid Fever in Paris," in relation to the quantity of rainfall and the conditions of sewage. He finds, from an examination of the weekly bulletins, that for the last three years a heavy rainfall is followed about two weeks later by an increase in the number of cases of typhoid reported as admitted to the hospital, and in about four or five weeks by an increase in the number of deaths from this cause. As the disease has a period of incubation of from one to two weeks, and, if fatal, is usually so in from the third to the fifth weeks, this coincidence, which he finds repeated several times, would seem to be something more than a mere chance occurrence. Professor Pagliani does not find that the same thing happens in other localities having a soil as impure as that of Paris, and therefore concludes that rainfall and filth are insufficient by themselves to develop the disease, and that the reason for the effects observed in Paris is connected with its system of sewerage, and more especially with the effects produced by heavy and rapid rainfall in gorging the main sewers and obstructing the flow of sewage proper from the houses, or even causing a reflux of foul water into the cellar. Many of the smaller sewers have very little fall, and are readily obstructed. The explanation is somewhat doubtful, but the fact seems established.

Medical and Sanitary Exhibition, 1881.—Reward of Merit.—International Health Exhibition, 1884.—Stand 69.—Diabetes. Van Abbott's Gluten Bread, and all other suitable Foods for Diabetics, Dietary Table, Menu, Cooking Receipts, and Price List, post-free on application. Delicate Children. Van Abbott's Hypophosphite of Lime Biscuits, for Children suffering from Debility, Deficiency of Bone, or Ricketts. See the *Lancet* and Health. Constipation. Van Abbott's Bran Biscuits. Dyspepsia. Van Abbott's Malt Biscuits. Van Abbott's Vegetable Bread and Milk, Saccholac for Infants, Imperial Granum, Rolled Avena, and all American Cereals for Infants and Invalids. Hathorn Table-Water direct from the Springs in Saratoga, U.S.A. G. Van Abbott, 5, Princes-street, Cavendish-sq., London, W.—[Advt.]

Jottings from the Journals

"Th' ingredients of health and long life are
Great temperance, open air,
Easy labour, little care.—*Sir Phillip Sydney.*"

The Origin of Sea-Bathing.—The sea was held in dread by classical antiquity; immersion in its waters was an experience to look back upon with a shudder, and the Greek or Roman who came out of it alive repaired to the nearest temple, and there suspended his dripping garments and a votive tablet to the forbearing Poseidon, or Neptune. This horror of the sea descended to mediæval times, when, indeed, ablutions of every kind were almost dispensed with, and the human integument so sparingly refreshed with fair water as to earn for the ages in question a double title to Dark. A compulsory dip in the sea was a sentence sometimes passed on the mediæval offender, often with exemplary effect. The legend has it that a first-class misdemeanant, who, though ill at the time, was visited with this penalty, emerged from it so much the better physically as to shake belief in its deterrent virtue. Ronsard, the French poet and scholar, sang the praises of the ocean and its health-giving waters; but this was only a faint and far-off anticipation of its modern worship. It was in England, and towards the middle of last century, that the sea was first recognised as the mighty sanitary agent the world now acknowledges it to be. At that time Western Europe was heavily scourged by scrofula—King's Evil, as it was called—and all ranks of society, from peer to peasant, were more or less sufferers. Dwellers on the seaboard, guided by instinct apparently, drank of the briny water, bathed in it, washed their sores in it or bound them up with seaweed. And they had their reward in physical as well as moral invigoration. The profession took note of this practice, and Dr. Russel, a Court physician, who was the first to become cognisant of it, did not wait for a chemical or physiological theory of its efficacy, but prescribed it at once to his patients, and was followed by others of his contemporaries. Soon the English coasts were planted with villas and cottages; and hamlets, from their sea-bathing advantages, expanded into towns. At the close of last century Germany imitated England, then Belgium, then France, until in the year 1812 Dr. Lefrançois, of Dieppe, published a treatise on the internal and external virtues of sea-water, and raised his native town into a much-frequented health-resort. So that from having been first used in scrofula, the touch of ocean is now employed in countless other evils than the "king's"; and invalid Britannia repairs, with yearly recurring alacrity, to the waves over which she rules.—*Lancet.*

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Cheap Dinners for Destitute Board-School Children.—The Committee of Representative Managers of London Board Schools have sent us a circular from the sub-committee appointed to consider the subject of cheap dinners for destitute scholars. It deals with a pressing and difficult question in a very practical way. The circular states that in several of the board-schools many children are unable to learn as much as they otherwise would from the fact that they are insufficiently fed. How to supply this want without pauperising the parents is a difficult problem, but from careful inquiry made by the sub-committee, they have ascertained that under certain conditions substantial and nutritious dinners can be provided at one penny each to pay all expenses. The following dinners have thus been supplied recently at certain centres:—Soup with bread, and bread and jam; bacon sandwiches and bread and jam; jam roly-poly pudding; stewed meat; cold bacon and bread; hot bacon and beans; Irish stew; beef and macaroni; currant-pudding; stewed meat and vegetables; rice with milk and treacle or sugar; bacon and hot potatoes; bread and cheese; bread and jam. The conditions necessary to make such dinners self-supporting at one penny each, are:—1. An average daily attendance of about 200 children including those whose portions are purchased for home consumption. 2. Skilful organisation in buying and preparing the necessary food. 3. A suitable room, with one or two coppers available, in the neighbourhood of one or more board schools, which can be hired at a moderate rent. 4. A sum of about £10 for preliminary expenses. As it is extremely desirable that efforts should be made in various localities to meet the need of under-fed scholars during the winter, the representatives of each school, or group of schools, is earnestly requested by the Chairman of the Committee, Mr. R. J. Simpson, to bring the subject before his committee at the next meeting, and to be good enough to send replies to the following questions to Mr. H. Forbes Clarke, the honorary secretary of the sub-committee, as soon as possible. If only a few children in any school are in need of such help, the sub-committee will be glad to know, as a centre might be arranged for several schools in any given locality. The questions to be replied to are:—1. Are there any schools in your group for which such provision is necessary? If so, please name them. 2. Count how many children in each school would be likely to purchase penny dinners daily. 3. Is there any suitable room available in your district? 4. Are there any managers or other local persons who are willing to provide, or to help in providing, such dinners? Further information can be obtained of the honorary secretary of the sub-committee, H. Forbes Clarke, Esq., Camden House, Hungerford-road, Holloway, N.—*British Med. Journal.*

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New Houses.—The *Gesundheit* quotes a proposal drawn up by a Magdeburg society for defining the period during which new houses should be allowed to dry before being inhabited. It is suggested that if the building has been roofed during the winter months (October 1st to April 1st), it should be allowed to dry for four months, while three months would suffice at other times of the year. There should be at least eight weeks between the completion of the internal plastering and the beginning of the occupation. In special cases, where technical and medical experts agreed that the rooms (as ascertained by hygroscopic observation) were fit for habitation, it would be optional for building inspectors to shorten the above-named period from three to two months.

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Consumption and Age.—Dr. Edgar Holden has published, in the *New York Medical Record*, the result of statistics, which coincide in the main with the investigations of the German Board of Health, in showing that the danger of dying of consumption after the age of twenty-one practically increases as age advances. In other words, relatively more persons die of consumption between the ages of sixty-five and seventy-five than at any period after twenty-one.

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International Health Exhibition. — Eastern Gallery. — The Picture Gallery Reflector.—Chappuis' Factory, 69, Fleet-street, E.C.—[Advt.]

Recreation and Health

"Health is the vital principle of bliss,
And Exercise of health."—*Thomson.*

HEALTH AND HOLIDAYS.

FOREIGN HEALTH-RESORTS.—XI.

By a Physician.

Montreux.—Celebrated as a health-resort in certain stages of consumption. It is situated on the north-east shore of the Lake of Geneva, 1,180 ft. above sea level, and fifteen miles from Lausanne, amid beautiful scenery. The average winter temperature is 40·55° Fahr., and the number of rainy days during the year sixty. At Montreux, however, as at many other foreign health-resorts, the sudden and often very considerable changes in the climate form a serious drawback. Living is cheap, and the accommodation fairly good, but the means of amusement limited. Population, 2,300. The district in which Montreux is situated also includes Clarens, Vernex, Territet, and Villeneuve, all of which have their advantages as health-resorts, and, to a greater or less degree, are sheltered from the cold winds. Hotels: Hôtel et Pension Beau Rivage, Hôtel des Alpes (Territet), Hôtel Beau Séjour-au-Lac (Vernex), Hôtel Byron (Villeneuve), &c. Fares from London *viâ* Calais, Paris, Macon, and Geneva: First class, £6. 6s.; second class, £4. 13s. 6d.

Nauheim.—This is a spa that is but little known in England, but yet possesses many important recommendations. It is situated about twenty miles from Frankfort, in Germany, under shelter, on the south side of the Taurus mountains. In some respects it may be compared to Homburg, but is of a much more serious aspect, and can in no way be looked upon as a resort of pleasure. There are five springs at Nauheim, three being used exclusively for bathing purposes and two for drinking. The former are hot, varying in temperature from 82 deg. to 92 deg. Fahr., and the most important is the Frederick Sprudel, which is extremely rich in common salt (containing no less than two hundred and sixty-five grains to the pint) and carbonic-acid gas. The drinking springs are the Kur Brunnen and the Carls Brunnen. The Nauheim waters are said to be especially efficacious in certain forms of gout and rheumatism; also in heart affection following an attack of rheumatic fever, and in many varieties of scrofulous complaint. They are likewise beneficial in cases of paralysis, where the disease is not the result of changes in the nerve centres themselves, but in rheumatic affections of their coverings. The climate is clear and bracing. Population, 3,000. Hotels: Hôtel de l'Europe, Hôtel de Belle Vue, Deutscher Hof, &c. Fares from London, *viâ* Calais, Cologne, Bingerbruck, and Mayence: First class, £4. 5s. 6d.; second class, £3. 1s. 6d.

Nice.—Dr. Burney Yeo, in his instructive little work on "Health-Resorts and their Uses," to which we have before made reference, wonders why invalids, in the majority of cases, should be sent to this health-resort at all. "If," he writes, "this were the only town on the Riviera where good accommodation and good medical skill could be procured—as no doubt it once was—I could understand the propriety, nay the necessity, of sending sick persons there in great numbers, as once was the custom; but to select Nice when Cannes and Mentone and San Remo and other places are available, for the generality of patients, except *for some other reason* than that they are invalids, seems to me difficult to understand." We have quoted these words because they express our own views very clearly on the matter. The advantages of Nice for the invalid, when compared with other health-resorts on the Riviera, are few, and its disadvantages great. The climate, though warm, is extremely changeable, owing, in a great measure, to the inconstancy of the wind, which often varies as many as three or four times during the day. A the end of winter and beginning of spring the Mistral blows with great fury, and the town, being but little protected to the north-west, is completely swept by it. At times, too, a bitter north-east wind prevails. Another drawback to Nice is that it is a large town, of particularly gay and lively manners; but this is the very point that, in the minds of some people, forms its chief attraction. For most invalids no doubt the social life will prove too noisy and disquieting, but for a class of patients whose complaint is attended with lowness of spirits and melancholia it will often be highly beneficial. Thus, many forms of dyspepsia do well here, and it is attended with much success in cases of simple debility, brought on by overwork; also in anæmia. Consumptive patients we should recommend, for reasons which have been stated, to some quieter and less exciting spot. The best parts of Nice to reside at are the suburbs, Cimiez and Carabacel, where the climate is more sedative, and the latter much less exposed to the winds. The average annual temperature is 60·3 deg. Fahr.; that of winter, 49·1 deg., and spring, 58·1 deg. The coldest months are January and February; the windiest, March, April, and May; and the wettest, October and April. Annual number of rainy days, 67; winter, 52. Snow very rarely falls, and there are no fogs. The neighbourhood of Nice is exceedingly beautiful, and the Corniche road, leading to Mentone, a distance of eighteen miles, especially lovely. Population (1881), 54,953. Hotels: Grand Hôtel, Hôtel de France, Hôtel des Anglais, Westminster Hôtel, Hôtel Massena, Hôtel d'Albion, Hôtel d'Angleterre, &c. Fares from London *viâ* Calais, Paris, and Marseilles: First class, £8. 5s. 6d.; second class, £6. 4s.

Pau.—A town of some thirty thousand inhabitants situated in the South of France, department Basses Pyrénées, 143 miles from Bordeaux. It is built on a flat plain 700 feet above sea-level, and at one time was held in great repute as a health-resort, but of late years has scarcely excited so much attention in this respect. The climate is mild but extremely variable, and one of the principal features in connection with the place is the remarkable stillness of the atmosphere. The surrounding scenery is highly picturesque; and the visitor will find no lack of amusements in the town. The chief forms of complaint for which the air is beneficial are spasmodic asthma and chronic consumption. The mean annual temperature is 56° Fahr.; for the winter, 44·6°. Hotels: Hôtel de France, Grand Hôtel Beau Séjour, Grand Hôtel Gassion, Hôtel de la Poste, &c. Fares from London, *viâ* Calais (or Boulogne) Paris, Bordeaux, and Dax: First class, £6. 16s. 6d.; second class, £5. 2s. 6d.

Pegli.—A small health-resort situated six miles west of Genoa, over which it possesses the advantage of being much warmer, and to a greater extent protected from the winds. The climate is said to be very suitable in cases of asthma. Hotels: Grand Hôtel Pegli, Grand Hôtel Gargine, Hôtel d'Angleterre. Fares from London, *viâ* Calais, Amiens, Bâle, Lucerne, and Genoa: First class £7. 18s.; second class, £5. 16s. 6d.

Swimming and Ling's Swedish Exercises.—Mrs. Florence Williams, Certificated Teacher. Schools and private families attended.—The Crown Baths, Kennington Oval, S.E.—[Advt.]

Our Bookshelf

"Reading maketh a full man."—*Bacon.*

SULPHUR AND CHOLERA.

Observations in the Efficacy of Burning Sulphur-Fires in Epidemics of Cholera, with Addenda regarding Disease Germs. By Deputy-Surgeon-General Tuson, M.D., F.R.C.S. Fifth Edition. (W. H. Allen & Co., 13, Waterloo-place, London. 1884.)

Dr. Tuson is a firm believer, as the title of this pamphlet indicates, in the efficacy of sulphurous acid vapour as a means of purifying the air, and of ridding the atmosphere of the germs to the growth of which cholera is due. His experiences are given in a highly interesting fashion, and we may allow the author to relate his experiences in his own words:—

"In the autumn of 1872," says Dr. Tuson, "when placed as Sanitary Officer at the Sonepore Fair, and during the height of the pilgrimage, when the people thronged in thousands to the bathing ghats, I first used sulphur fires as a prophylactic measure against cholera. These fires were burned at fifty yards apart, and kept alight during the whole time that the fair was at its height. It was gratifying for me to be able to report that not a single case of cholera occurred—a remarkable circumstance, as it had generally broken out at previous fairs. In December, 1872, when cholera was epidemic at Dinapore (fourteen and fifteen cases occurring every day), and threatened to become very severe, I again used these fires all through the bazaar, and the effects were so marked that the people attributed the cessation of the disease to their use. The Bunnias voluntarily burned these fires before their own houses. I published the particulars of this outbreak in the *Indian Medical Gazette* of April, 1873, stating that cholera ceased simultaneously with the burning of these fires."

In connection with the practical application of his method, Dr. Tuson remarks that, "there are certain points, however, with respect to their use, which I think are of great importance. When the fires are being burned, unless they are either personally supervised, or under the direction of a very trustworthy assistant, all the benefits they may exercise are often rendered inert. It is imperatively necessary that all the fires should be lighted and burned at once, and the sulphur sprinkled on them simultaneously. This can be done under the direction of intelligent policemen, and men under them. I cannot help attributing the want of success in one or two instances in other places to the neglect of these measures, as I myself found how difficult it was to induce the police to light all the fires at once. The piles of wood should be good large heaps, so as to last several hours, and then replenished; they should be placed at distances of from forty to fifty yards round a village, particularly to windward of it; and at those spots where cholera has its habitat, and where several cases have occurred, they should be burnt at closer intervals, while the houses themselves should be disinfected with sulphurous acid. I am fully alive to the difficulty of effecting this measure in large cities, but should hope that even this might be accomplished with the aid of the civil authorities and the police, and with the co-operation of the inhabitants, who, if they were impressed with the advantage of the measure, would, I apprehend, cordially assist operations. It is of great importance that the fires should be placed all through the streets of a town affected, as well as round it. The fires ought also to be kept up for at least twenty-four to forty-eight hours, so that the sulphurous fumes should completely permeate the atmosphere. The expense is not great; indeed, a large surface of ground can be covered over for a small outlay. When houses are disinfected with furniture in them, it should be covered up to prevent the colours from fading."

The quantity of sulphur added to each fire should be about two pounds, and this quantity, in Dr. Tuson's opinion, should be sufficient for twenty-four hours. We should feel inclined to maintain that this quantity is too limited in extent. We presume likewise that the sulphur should be added at intervals to the fire, so as to re-charge the air, so to speak, with the fumes. There can be no doubt, in the first place, that sulphur, acting by the liberation of sulphurous acid gas, is a good disinfectant, and well adapted to destroy germ-materials in the air. In the second place, experience has shown the high value of this method of fumigation in times of epidemics, while experiment has proved the efficacy of sulphurous acid gas in killing germ-life. Dr. Tuson's pamphlet comes at an opportune moment. There can be little doubt that had his method been applied at Toulon and elsewhere of late, we should probably have heard less of the spread of cholera in France. We warmly recommend this pamphlet and its teachings to Local Boards and all other bodies interested in the repression of epidemic disorders.

CHEAP HEALTH KNOWLEDGE (*continued*).

Health Primers: A Series of shilling volumes on subjects connected with the preservation of health. (London: W. H. Allen & Co., 13, Waterloo-place.)

I. *The Heart at its Functions.*—The heart, in a certain sense, is one of the best attended to organs of the body. Fully one-half of the people one meets are under the impression that they suffer from some affection of this structure, and though, perhaps, they will not confess to their fears at first, a very little questioning, with a delicate handling of the situation, soon breaks down their reserve, and the truth is revealed. They have had palpitations, they turn pale on ascending a hill or quickly running up-stairs, and have experienced all the other manifestations which are supposed by the vulgar mind to be indications positive of heart disease. It need hardly be said this is a popular fallacy. And yet, strange as it may seem, few of these people, comparatively speaking, have any idea of the actual nature of this organ, or of the work in the human economy that it seems to fulfil and how it does so. They know that it has something to do with the blood, and may be at some period in their existence they have heard it compared to a pump, and that is about all. It is this ignorance on what is really a highly important question, and not only important, but extremely interesting, that the volume under notice tends to dispel. Commencing, in the first place, with an answer to the very natural query why we have a heart, it next proceeds to consider and describe the structure of the human heart, its function, and how it is performed, and then its relation to the general system, finally ending off with some very excellent remarks on how to maintain its integrity, with the injurious influences that should be avoided. The entire work is written with much perspicuity and clearness, and is fully up to the standard of the preceding volumes.

COCA OR CUCA LEAVES.—The new stimulant, gives renewed life and vigour to the *Weary* and *Overworked*. Dr. Blunt, of Northampton, says:—"The recuperative powers of this restorative are truly astounding." Sample packets, together with medical and scientific opinions, 13 stamps, post free, from J. T. Marks & Co., 17, Newcastle-street, Farringdon-street, E.C.—[Advt.]

Where necessary, diagrams of the different parts described have been given.

II. *The Nerves.*—This is the most complex of all the subjects in this series we have at present considered. Probably for this reason it will be the least popular with the general mind. It, indeed, requires a man of special training, who has devoted his attention for some time to the consideration of science, to grasp and master with ease all the intricate and involved matters that are connected with a study of the nervous system. However, in this little book we may say the difficulties naturally attendant on the consideration of such a subject have been largely overcome, and the topic is placed before the reader in a very simple and intelligible light. In the first place, the chief features of the nervous system from an anatomical and chemical point of view are discussed, and from this he is led to the consideration of stimuli, reflex actions, the relation of the nervous system to digestion and circulation, with its influence on respiration. The work concludes with a section on the higher functions of the nervous system, and the measures that are requisite to keep it in a healthy condition.

With the writer previously considered, the author maintains that alcoholic stimulants are unneeded, except in cases of exhaustion; and the average amount of sleep required he fixes at seven hours. Crowded, over-heated rooms should as far as possible be avoided; and upon the training of children he lays especial stress, urging that inasmuch as the mind is greatly influenced by habit, and what has once been done is more easily done again, and becomes easier even still after frequent repetition, it is in the highest degree important that the habits inculcated "should be those that tend to develop the moral attributes and the higher qualities of the mind." In conclusion, we may congratulate the author on the success which has attended his attempt to place what is naturally a somewhat profound and obscure subjects in a clear and concise form.

A USEFUL GUIDE TO MEDICAL TREATMENT.

An Epitome of Therapeutics. Being a Comprehensive Summary of the Treatment of Disease, as recommended by the leading British, American, and Continental Physicians, by W. Domett Stone, M.D., F.R.C.S. (London: Smith, Elder, & Co.)

This is a handy volume, written by one of the contributors to the pages of Health, and presenting a most admirable view of the various methods of treating disease at present in vogue in medical circles. Such a work must prove eminently useful alike to the practitioners engaged in the active pursuit of the medical art, to the student of medicine desirous of knowing what has been done in the field of disease-treatment, and to the general reader, who cares to interest himself in the ways and works of medical science. The various diseases, and the remedies which are most in vogue therefor, are given in alphabetical order, and easy reference to the most approved methods of treatment is therefore facilitated. The value of such a work as the present is undoubtedly very great. In one sense alone—that of presenting us with a digest of the best methods of treating disease—Dr. Stone's volume may claim a place in the shelves of every well-appointed library. As a book of general reference, it is also most interesting. The medical literature of the present day has assumed such huge proportions that, but for the service rendered by a volume like that before us, the task of discovering the details of new remedies would be simply hopeless. In the case of the treatments prescribed for various diseases, Dr. Stone has been careful to give accurate references to the original papers from which his details are culled, and in this way, the reader, should he be so minded, can pass at once to the source of the information of which Dr. Stone gives a digest. As we have said, this book, apart altogether from its value to the general practitioner, is a volume which, in the hands of travellers, missionaries, and others, should prove extremely interesting and valuable in treating patients successfully in many of the exigencies of life.

A Valuable Invention.—It is gratifying to learn that Mr. R. Adams, of 17, Blackman-street, London, S.E., whose fanlight-openers and silent door-springs are being extensively used, has received large orders for his Patent Reversible Window. The sashes, although they slide up and down in the usual way, can be instantly turned inside out, enabling anyone to clean each side of the glass with ease, while standing in the room.—[Advt.]

Sanitary Appliances, Etc.

THE ALBION MILK AND SULPHUR SOAP.

We have received from the "Albion Sanatory Soap Company," 76, New Oxford-street, London, W.C., samples of their well-known "Milk and Sulphur Soap," which we have pleasure in certifying fulfils all the essentials of a good soap. Chemical examination has shown that the materials used in the manufacture of this soap are of a pure kind, and include no ingredients likely in the least degree to prove injurious to the skin. The soap is extremely emollient in its action, and is therefore certain to prove agreeable to those whose skin is apt to resist the employment of common and inferior soaps, of which there is unfortunately a superfluity in the market. In the cure of the dandriff or scurf, for ordinary head-baths, as well as in ordinary skin-eruptions, and particularly in the simple eruptions which are apt to arise from chills and like causes, the "Milk and Sulphur Soap" will be found beneficial. It may be added that the soap is pleasantly perfumed, and, unlike many medicated and skin soaps, is thoroughly agreeable to use. In the nursery, and for young children, this soap will be found highly serviceable. The other makes of soap sold by the "Albion Sanatory Soap Company" include a "bleaching soap," and a "disinfectant soap," both of which are highly useful and reliable manufactures.

THE MONTSERRAT COMPANY'S LIME JUICE PREPARATIONS.

Samples of the Montserrat Company's lime juice preparations have been submitted by us to a careful examination, the result of which has been to demonstrate in a singularly apt fashion the reputation for excellence and purity which these fluids have long enjoyed. Our examination has shown that the Pure Lime-fruit Juice itself, as well as the Limetta Cordial and its companion fluids, is manufactured from fruits which have attained the requisite degree of ripeness, while, probably from the fact that the fruit is not exhausted of its juice, the Montserrat Company's preparations retain their freshness in the absence of alcohol, and do not exhibit the musty flavour or putrefactive changes so constantly exhibited by inferior preparations of this kind. As a beverage for warm weather, we have found the Montserrat Juice capable of constituting a most refreshing beverage, even when combined with four or six times its bulk of water. In the cure of the skin-troubles which result from slight digestive disorder, this juice will be found invaluable; and, as a temperance beverage, it should take a high rank among the popular drinks of the day. It is infinitely preferable to many of the sparkling beverages, which contain iron and other ingredients, and which are apt to produce stomach-derangement as ordinarily used.

The Lime Fruit Cordials of the Montserrat Company have also been duly examined by us. These contain various fruit essences combined with lime juice as a basis, and are infinitely superior to the cordials commonly sold for dilution with water, plain or ærated. The Aromatic Cordial, Pineapple, Raspberry, and Strawberry Cordials are well adapted for beverages, while the Sarsaparilla Cordial, the Quinine Cordial, and the Lime Fruit Bitters must also be named as elegant tonic preparations. The Quinine Cordial should become popular as a tonic preparation. A novelty in the way of Lime Juice preparations is the Montserrat Lime Fruit Juice Sauce. This sauce is not only pleasant to the taste, but is highly appetising, and well adapted for use as a relish.

Our Letter : Box

"Conference [maketh] a ready man."—*Bacon.*

NOTICES TO CORRESPONDENTS.

All Communications for the Editorial Department (including specimens of Sanitary Appliances, &c.), to be addressed to "The Editor of Health," 74-76, *Great Queen-street, London, W.C. Those intended for the Publishing Office to be sent to* "The Publisher," *at the same address.*

Contributors are requested to send stamps for the return of the MSS. *in event of non-acceptance. Every care will be taken to ensure the safety of* MSS., *but the* Editor *and* Publishers *cannot hold themselves responsible for accidental loss.*

Correspondents are requested to write on one side of the paper only. The Editor *disclaims responsibility for the opinions expressed by Correspondents.*

[Several letters are unavoidably crowded out of the present issue.]

LETTERS TO THE EDITOR.

SCHOOL HYGIENE.

44, Berners-street, W.

Sir,—It may perhaps interest some of your readers to know that the National Health Society has been lending its aid towards obtaining a solution of the important and difficult question of School Hygiene.

During the first week in this month the National Health Society, in connection with the Medical Society of London, held a conference on this subject at the International Health Exhibition.

"School Dietaries," "Charity Dinners in Elementary Schools," "Over-Pressure in Schools and the Evils of Competitive Examinations," "The Duties of School-Managers respecting Epidemics and Preventative Treatment of the same," "The Construction and Arrangement of Dormitories and Schools generally," "The Effects of Posture," "The Necessity of Gymnastics and Recreation," and "The Advisability of Special Institution for the Education of Idiots, Imbeciles, &c.," were among the interesting subjects discussed. Sir Andrew Clark, M.D., Sir James Paget, F.R.S., Sir Rutherford Alcock, K.C.B., Sir Joseph Fayrer, F.R.S., A. E. Durham, Esq. (President of the Medical Society), Dr. Gladstone, Prof. de Chaumont, George Buchanan, M.D., Dr. Langdon Down, J. Pridgin Teale, Esq., F.R.C.S., Crichton Browne, Esq., F.R.S., Alder Smith, Esq., F.R.C.S., Brundell Carter, Esq., Marchant Williams, Esq., C. Kegan Paul, Esq., M.A., Dr. R. Farquharson, M.P., F. J. Dyke, Esq., F.R.C.S., J. Murgatroyd, Esq., F.R.I.B.A., G. G. Shuttleworth, Esq., M.D., Edwin Chadwick, Esq., C.B., and many other eminent authorities took part in the proceedings.

The papers on these subjects will shortly be published officially by the International Health Exhibition, and will be obtainable at the Exhibition. It is sincerely hoped that the efforts made at this Conference to point out the vital importance of a perfect hygiene in schools may lead each individual concerned to a deep and serious study of the subject.

The National Health Society are always ready and willing to give advice or aid in sanitary matters to those who may require it and will apply to them. For over ten years they have been trying by means of publications and lectures, delivered to all classes of society in and out of London, to make the simple laws of health and sanitation more generally known and better observed. Started in 1871 by only 89 members, and with very small funds, the National Health Society has now (1884) between four and five hundred members, and with an average income of £500 per annum, they deliver numerous lectures in all parts of England; give prizes in various schools for proficiency in swimming, knowledge of the "laws of" health and domestic economy; they give grants of books to working-men's clubs, of seats or trees for public playgrounds or open spaces for the people; and hold meetings in different parts of London to discuss special or general topics of sanitation. Last year they held a "Health" Exhibition at Knightsbridge, the forerunner of the more extensive one at Kensington, which is now proving such a success.

This year, on account of the recurrence of small-pox in the metropolis, they have caused a pamphlet (which has been revised and sanctioned by the Local Government Board) on the subject of vaccination to be prepared, and which they suggested should be distributed from house to house by officers appointed by the Guardians of each district. This plan has been adopted by many of the Unions—over 200,000 copies having been thus distributed, and has greatly assisted the vaccination officers in the discharge of their often difficult duties, as the actual facts on this most important question are thus brought home to every householder.

In view of the possible importation of cholera to this country, and the necessity of each individual understanding what precautions to adopt against the encroachments of this disease, this Society has now prepared a memorandum, which has been revised by the highest authorities on this special subject, explaining, in simple language, "How to oppose and prevent the cholera."

In conclusion, I may perhaps add that the N.H.S. are entirely dependent for their income on voluntary subscriptions and donations. I, therefore, trust that every reader of this letter will feel convinced how thoroughly worthy their aims are of encouragement and support, as they are ever actively engaged in promoting the health and consequent wealth and welfare of the nation.—I am, sir, yours faithfully, E. M. Carpenter, Assist. Sec.

GROWTH OF HAIR AFTER DEATH.

Sir,—Referring to the article on "Baldness and Greyness" in your issue of August 15, page 299, allusion is there made to the work of Dr. Tom Robinson. The writings of that esteemed gentleman I have not had the pleasure of reading; but from what you say about his work one would at once conclude he believes in the growth of hair after death, which at the present time I think is not acknowledged as a stable truth. It is true the hair apparently increases in length after death; which, however, is mainly due to the shrinking of the fleshy tissues from the roots and bulbs.

In life, the veins, arteries, and capillaries are charged with circulating blood, which must of necessity cause a fulness and distention of their walls, giving the surrounding tissues an enlarged and plump appearance. But when death takes place, and the circulation ceases to flow, the blood is driven back into the heart and venous trunks from the muscular contraction known as the *rigor mortis*, or last act of dying. It is then that the shrinking of the soft parts occurs that gives the lengthened appearance to the hair, instead of any actual growth taking place.

The attention of the reader was also drawn to the case of Lady Johanna Mordaunt, where so much growth of the hair was supposed to have taken place that a complete mould of the head had been formed. This, again, can be fully explained by the hair having lost its essential oil; it becomes dry and frizzy also from the action of certain decomposing substances on the hair. A similar effect can be seen when the hair of live subjects is washed in water impregnated with strong alkalies. Again, to show that hair cannot grow after death, microscopical researches have long since proved that each hair is supplied with a distinct circulation for its growth and nourishment; and that when deprived of that circulation it cannot any longer live, but very quickly dies and falls out.—I am, sir, yours truly, T. A. Mitchell.

Rushey Green House, Catford, S.E.

WOOD WOOL.

11, Hatton-garden, London, E.C.

Sir,—At the present moment, when so much is said and written with reference to cholera, and noticing in your very valuable journal remarks dealing with this subject, it might be of interest to you and your many readers to learn that Hartmann's Patent Wood Wool is an excellent material for rapidly absorbing and disinfecting fluids excreted from the intestines. According to the statement of one of the most eminent German physicians, the properties of Hartmann's Patent Wood Wool stamp this material as a most admirable and excellent medium for cholera patients. Among the many sterling qualities of Hartmann's Patent Wood Wool is the most important one, that, if employed in this particular case, it may be simply scattered into the bed, without in the least inconveniencing or disturbing the patients, and can be quite as easily removed. Hartmann's Patent Wood Wool, employed for this purpose, could be prepared with carbolic acid, as this appears to be particularly efficient against the cholera-bacillus or germ.

We should be much gratified if you can see your way to make known to your readers the contents of our communication, and we beg to remain, your obedient servants,

Essinger & Neuburger.

A preparation of codeine, with citric acid, tolu, and glycerine is being used with advantage in throat affections.

QUERIES AND ANSWERS.

We would direct the attention of our correspondents to the fact that, owing to the necessity for sending HEALTH to press early in the week, answers to queries cannot, as a rule, appear in the succeeding number of the journal. Every effort is made to secure punctuality in the replies, but we must ask the occasional indulgence of our readers, owing to the large amount of correspondence, which requires assortment and reply.

We must also request correspondents who write enclosing stamps for copies of HEALTH, to address their inquiries to the Publisher, *and not to the Editor.*

We beg to announce to our correspondents that, save in exceptional cases, or where addresses of medical men, &c., are desired, we cannot reply to inquiries by letter.]

Correspondents will please note that Queries addressed on Postcards are consigned to our waste-paper basket. If information is worth having, it is at least worth a letter.

[A number of replies are unavoidably held over from pressure on our space.]

GENERAL.

T. G.—"Empyema" means a collection of matter within the cavity of the pleura, or lining membrane of the chest. "Emphysema" means inflation with air of the ordinary tissues of the body.

SUNDERLAND.—No; there are twenty-two bones in the human skull according to ordinary anatomical enumeration. Your difficulty arises from the fact that man's skull is a modified structure; and that many bones found in lower animals are either wanting or amalgamated with other bones in the human cranium.

B. G. S.—Declined with thanks.

THOMAS FARR, P. L., INFANT.—Not suitable for our pages.

A. TORR.—1. Give the "Anti-Moth Paper," recently noticed in HEALTH, a trial. 2. "Sanitas."

BEXLEY.—1. There has been no epidemic since 1866 or so. 2. The cause, or rather the condition, favouring the development of typhus fever is the organic matter in the air produced by overcrowding and want of ventilation.

THOMAS CROW, AILIE, AND OTHERS.—Dr. Andrew Wilson's "Manual of Health" is in the press. It will shortly be published by Messrs. Longmans, and due notice of publication will be given in these columns.

BINDEL.—When a physician speaks of the "diathesis" of a patient, he means the tendency or disposition that patient shows to certain diseases. Thus we speak of a scrofulous "diathesis," a consumptive "diathesis," and so on.

ALEXINA.—Not so far as we know. We are not aware that the legality of the process has ever been tried.

G. BAIRD.—There is no doubt you acted wisely. Probably you will hear no more of the matter or the man.

OLGER.—See a letter by Dr. Mitchell, of Catford, in this number of HEALTH. In our own opinion the point is a moot one, and not yet decided.

P. C.—You are quite right in what you suppose possible. A blow with a staff on the head may produce a clean cut, such as would hardly be supposed to be the result of such an injury.

TENDRESSE.—Try "Wood-wool." It is almost certain to suit your purpose.

ITALIA.—The man is a quack pure and simple. The pamphlet you send offers the clearest evidence of his character. Many of its statements outrage common sense, to say nothing of modesty.

G. C.—No fear of infection, we should say. Use Sanitas or carbolic acid as a disinfectant.

ABRAHAM.—An article on "Dreams," by Dr. Wilson, in the *Gentleman's Magazine* for September, might be perused by you, conjointly with the papers in HEALTH on "Sleep-Walking."

J. PRETSELL.—Only an attempt at extortion, which you should manfully resist.

L.L.D.—The university is one of the oldest and most respectable in America. That you last name is extinct. Its "bogus" degrees at last became too absurd even for the credulous to accept as evidence of culture.

TACITUS.—No; it is Herodotus who mentions the fact. See Lyell's "Antiquity of Man."

TRICYCLE REPLIES.—J. N. A good machine, and one likely to give you every satisfaction.—PETER BAIN. See reply to "J. N."—CECUS. The weight of the "Meteor" Sociable ridden by us is 140 lb.—A. GRANT. The machine second-hand should cost, say, £10.—J. BLUNT. You ride too soon after meals. Exercise just after food is eminently injurious.—A. J. O. Your troubles arose from your drinking cold water when heated—a highly dangerous proceeding.—BURNETT. There is no sign of disease in what you name. It is merely a consequence of exertion, liable to occur especially in those who are new to the exercise.

ANNETTE.—You mean the "Coca Leaf." See paragraph advertisement in HEALTH. It has long been noted for its sustaining qualities.

SANITARY.

ENGINEER.—We have heard of the "Beehive Refuse Destructor." It is the invention of Mr. Stafford, Borough Engineer of Burnley, where it can be seen at work. One "destructor," 7 ft. in diameter, is said to destroy the refuse of a town of over 60,000 inhabitants, consuming one load (equal to 15 cwt., or 52 cubic feet) in one hour, at a cost of 1s., including time of man and fuel. The cost is from £50 to £75 each. The makers are Birtwistle & Co., Market-street, Burnley.

T. A. L.—The trap you name has been highly commended. We have instances at hand of its high efficiency. You need have no hesitation in adopting it.

G. PRAIN.—No such patent is known to us.

A. X.—Sorry we cannot give you a reference to the source from which the paragraph was taken.

D. BELL.—1. Not suitable for your purpose. 2. A sign of sewage escape.

PETER J.—See advertising columns of HEALTH. We have seen the "Automatic Disinfector" at work, and know the invention well. One charge serves, under ordinary circumstances, for a year.

SOLDAT.—Bostel's and Banner's are good. Either will give satisfaction.

C. C. G.—Have the gas fumes carried off by a special flue. There is no other plan advisable.

MEDICAL.

QUILL-DRIVER.—The ordinary rules of health are those you must observe. Your symptoms are such as might well be caused by straining the sight. Give up reading in the train, it is injurious to the eyes. For the rest, see that you avoid constipation above all else. The home-made soft bread is probably the cause of your ailment. Try whole meal bread instead. Take a cold sponge bath each morning, but don't wet your head, and see how it agrees with you. A dose of Lamplough's Pyretic Saline, taken in the morning occasionally, will serve to initiate regular digestive action.

FACIES.—Regulate your diet wisely, and give up tea and coffee for a time. What you complain of often arises from excess in exercise. Look to this. Try the lime powders recommended to "Albion Hyde" in HEALTH No. 73. There are manuals on the "Skin" published by Messrs. Chatto & Windus, London. Write for their catalogue. Freckles are often very difficult to remove. Try the effect of the powders above recommended.

JULIE.—See advice to "Facies" above respecting the lime-powders and general care of the skin. Avoid chills especially.

ANXIOUS.—Read the article "A Valuable Remedy," in HEALTH No. 63, and give any of the Cascara Bark preparations therein named a trial. If not bettered, write again. It is probable that fifteen drops *Fer Bravais* taken in water thrice daily an hour after meals might assist your cure.

PRECAUTION.—The flannel can have no possible effect as a cholera-preventive beyond affording warmth. It could have no efficacy if you were exposed to infection.

ELSA.—What you complain of is simply an example of a nervous affection, probably rendered all the more noticeable on accout of repetition. Try the effect of taking a teaspoonful of Fellows' Syrup of the Hypophosphites thrice daily an hour before meals in a wine-glass of water, and let us hear how this advice acts on the ailment.

J. T. R.—Try the following mixture:—Tincture of catechu, three drachms; tincture of opium, one drachm; aromatic powder, a drachm and a half; chalk mixture to make up six ounces. A dessert-spoonful to be taken after each attack. This medicine, you must note, is not to be used continually, but only after each attack of the diarrhœa.

P. W. A.—1. Certainly not; there is no communication between the two systems. "Gravel" results from impurities in the water drunk, and also from other conditions apart from food. 2. Yes; but the exercises would require to be very carefully regulated.

M. B. L.—Don't be alarmed. You are quite well and healthy. As usual, the perusal of quack literature (the man you name is a notorious quack) has frightened you. The statements you name are grossly untrue, and quacks know only too well that unless they succeed in arousing the fears of the ignorant, their occupation would be gone. Put the quack pamphlets you have been reading

in the fire, and keep your mind quite easy. What you name is common in all healthy persons.

Charlemagne.—You mistake the nature of the secretion to which you allude. It is not what you suppose it to be, but merely a trifling matter, due probably to constipation. Look to the state of your digestion.

C. A. L.—We can only suppose you have been rendered highly nervous by your troubles. Many of your statements regarding the "parasites" are (to us) absolutely inconceivable, and you must certainly have acquired erroneous notions, as none of the parasites you name could exist under certain of the circumstances you describe. If you will forward us a stamped addressed envelope, we can forward you the address of a physician whom it would benefit you to see, and who might be able to advise you regarding hospital treatment. Under the circumstances, we shall be glad to procure this advice for you at a nominal cost.

J. R. W.—Harness's Battery Belt or Pulvermacher's would suit you. As regards diet for the gouty, we may say you should abstain from heavy sherry, port, ale and porter, and fruits. Claret and hock often appear to do good in gout—at least, they are the safest liquors to recommend where any alcohol is taken. Too much animal food is to be avoided, and, of course, exercise must be taken freely. Bath, Cheltenham, and Leamington waters are recommended; abroad, Vichy, Wiesbaden, Carlsbad, and Aix-la-Chapelle are the resorts to which gouty patients are sent.

Alexis.—1. Take for a time the tonic recommended to "Elsa" in present number of Health. 2. Principally the lower ones.

Index.—Don't trust your child to a quack. His statements are given you without a tittle of evidence that he is able to do what he says. Epilepsy is far too serious a disease to be trifled with. Seek the best medical advice you can procure.

A. B. C.—See reply to "M. B. L." above.

Netta.—Simply due to extreme nervousness and to overwork. Rest, fresh air, and the tonic recommended to "Elsa" above, will effect a cure.

John Taine.—We fear the disease is incurable—only, as a matter of common sense, first be certain, through obtaining a reliable medical opinion, that the disease is really what it has been alleged to be.

O. W. S.—Your cure must be simply one of diet-regulation. You suffer simply from indigestion. Let your food be light for a time, and take soups, milk, boiled fish, &c., avoiding heavy foods. Rest after food is necessary in your case, and you should take a little of Morson's Pepsine with your food as directed on the bottle. You probably also stand in need of more open-air exercise. See also to this latter item.

One Wishful to Know.—1. Yes: there is no harm in wearing the belt and taking the tonic at the same time. 2. To give an appetite chiefly. 3. Dilute the milk with water, or add a little lime water thereto. 4. Very doubtful if anything can be done for your eyes; but you should certainly continue to use special glasses for reading and others for distant sight. Mr. Browning, 64, Strand, London, W.C., would advise you, if necessary, regarding the best glasses.

Z. P. S.—1. Rest is the sheet-anchor, and possibly ten or fifteen drops *Fer Bravais* taken twice daily in water between meals might assist the cure; but in all such cases a physician should be consulted. As you can readily understand, there are conditions in such a case which may require correction in a special manner, such as a medical man alone can apply. 2. We should advise you not to trouble about such hairs. The mucous membrane of the nose is very sensitive, and you might injure it by depilatories. Simply cut the hairs. 3. You must be very careful in the matter of aperients. Much harm, in such a case as that you name, is often wrought by their careless use. Some of the mineral waters (Hunyadi Janos, Æsculap, or Friedrichshall) are usually prescribed in such cases.

Clerk (Staffordshire).—No: we do not approve of the medicine you name, inasmuch as it is a patent nostrum whose composition is not known to us. Let your friend read and follow advice given to "G. H. Gawler" in Health No. 74, and he will get quite well. He should, above all, beware of quacks.

Ignorant.—We thought we had made clear to you that the statement, as ordinarily made by quacks, is tacitly untrue. They exaggerate into importance, what every medical man knows may occur occasionally without harm. This reply should make the matter clear to your understanding. To your other questions we reply:—1. Yes, of course, just as the skin or liver are acting constantly as long as life lasts. 2. It may be re-absorbed into the blood, if not used otherwise. 3. You should consult a manual of physiology (*e.g.*, Cleland's or Power's, published by Collins and Cassell respectively). 4. No, not a sign of debility. It may be natural. Use cold sponging each morning, and don't dwell too much on such topics.

Antiquary.—What you name is very interesting. We do not think the neighbourhood in question is to blame. Address an inquiry respecting the water-hardness to the Medical Officer of Health of the district, and let us hear what he says. An analysis of the water would well-nigh prove the case one way or the other.

A. G. B.—We think, under the circumstances, you should have your chest thoroughly examined by a reliable medical man. We can send you address of such, if desired, on receipt of stamped addressed envelope. There may probably be nothing seriously wrong, but it will ease your mind to undergo a thorough examination. Specially note if you have been losing or gaining weight of late.

R. H. (Glasgow).—Your trade, necessitating stooping habits, may be somewhat against you, and may possibly account for some of your symptoms. Otherwise we do not think there is much the matter. Attend simply to your general health. Let your food be light, and take a little Æsculap water in the morning occasionally as a corrective to constipation. Make fruits and vegetables part of your dietary, and thus correct the latter habit. Your other symptoms will disappear when your digestion improves. Take Pepsine with your food, or give Murdoch's Digestive Powder (357, Paisley-road, Glasgow) a trial as an aid to digestion.

F. C. M.—[Your letter was erroneously addressed. You should note address of Health Office for all communications to the Editor.] We regard the affair as a quack concern entirely, and advise you to have nothing to do with it. A glance at the list of their medicines is sufficient to show this.

Anglo-Indian.—We cannot advise you to have anything to do with the person who advertises himself in the pamphlet you enclose. If you will read Dr. Ebstein's book on "Fatness and Corpulence," reviewed in Health No. 37, you will find therein full details of the latest and most scientific method of reducing corpulency. We can thoroughly recommend this book to your notice and study.

Wanderer.—The tonic is Fellows' Syrup of the Hypophosphites, a teaspoonful to be taken in a wine-glass of water thrice daily. We regret having omitted the name in our former reply to you.

Scaly.—The latest remedy for psoriasis is chrysophanic acid, in the form of an ointment, as follows:—Chrysophanic acid, one drachm; lard, one ounce. A piece of this ointment the size of a pea to be rubbed into each patch of the disease daily. In many cases, the application of this remedy to one side of the body only (the other extremities being wrapped in cotton wool) has succeeded in removing the whole disease. We should not advise you to apply the remedy save under the direction of a specialist in skin diseases. There is an eminent skin authority in Glasgow, whose name we shall be glad to send you on receipt of a stamped addressed envelope.

A. McP.—See and follow advice given to "G. H. Gawler" in the last No. of Health. If not bettered, write again. The treatment will probably restore your appetite, and make you quite well. No need to be alarmed.

Missy G.—1. The boy should be seen by a surgeon accustomed to treat deformities. Such cases invariably require the best surgical advice that can be had, owing to their liability to develop into deformities. We can send you address of a London surgeon (on receipt of stamped addressed envelope) if desired. 2. We scarcely think the belladonna is altogether to be blamed for the result you name. Try the effect of a course of iron (*e.g.*, *Fer Bravais*, fifteen drops thrice daily between meals for a time, in a little water), and let us hear in a few weeks how you are. You will know, of course, that any treatment, to do good, must be persisted in. Don't overdo exercise. Glad to be of any further service to you.

Delta.—Let your friend read and follow advice given to "G. H. Gawler" in Health No. 74, and he will get quite well. Certainly, four of the five—if not the whole five—names you send are those of quacks, pure and simple. The Birmingham and Sheffield firms you name are notorious; equally so is the first on your list; while No. 3 is rapidly acquiring a reputation equal to that of the Birmingham firm. If your friend wishes to lose health and money, he can not do better (or worse) than place himself in the hands of the quacks whose names you send us.

M. B. G.—We think you should read the article in Health No. 63 entitled "A Valuable Remedy," and try the Cascara Cordial or other preparation of Cascara Bark there recommended. As a tonic and laxative, this drug would do good, and would in a little time put your digestion right. Food to be light and non-stimulating. A cold sponge (not shower) bath taken in the mornings, without wetting the head, might do good.

Henry.—While approving of vegetarianism for those with whom it agrees, we cannot help thinking you are sacrificing yourself to your "principles." Exercise common sense, and by the same reasoning as that through which you adopted vegetarianism, because you found it agreed with you, cease its practice when the opposite result has accrued. In our opinion, you suffer from under-nutrition. Try the effect of a little good meat-soup, and light boiled white fish occasionally. The worst of rigid vege-

[*Continued on page* 368.

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(*Signed*) A. H. HASSALL, M.D. LON.
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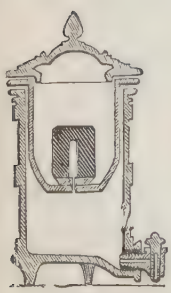

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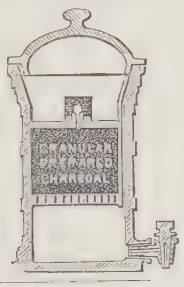

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tarianism is that in many cases it leaves no margin for illness when that occurs. Try hot salt baths for the pain, and rub warm oil or Vaseline at night into the parts where the pain and numbness exist. A more generous dietary, however, will probably cure you.

Country Ignorance.—Yes; the medicine you name was originally prepared as a remedy for consumption, and is given with good effect in that disease. As to curing such cases, you should bear in mind that each case has to be judged on its own merits. Give the medicine a fair trial. If you write to Mr. Fellows, 67, Holborn Viaduct, London, E.C., we have no doubt he would be glad to send you his pamphlet dealing with the use of his tonic in consumption.

Amorphos.—You need complete rest in every way for a considerable period. The practice you name in your postcript, you should know, is sometimes attended with nervous results such as you name. Try cold sponging each morning, non-stimulating diet, and a teaspoonful of Fellows' Syrup of the Hypophosphites in a wineglass of water thrice daily, an hour before meals. These hints, with rest, fresh air (a change to the seaside would do good), and out-door exercise will bring you round.

Henry B.—See and follow advice given to "M. B. G." above, regarding Cascara Bark preparations. Give this advice a trial, and let us hear how you are thereafter. Avoid vegetables, and give up tea and coffee for a time.

Kingston.—It is just possible your fasts are too long between meals. See that you rest after meals—this is essential for health. Try the effect of taking a little Morson's Pepsine (as directed on the bottle) with your meals, for a time; and let us hear how you are in a few weeks. Probably tea should be given up—for a time at least. Try milk, to which a little lime-water has been added, as a substitute.

Harex.—Steam from the infusion of leaves of Eucalyptus has been used in diphtheria (see *Lancet*, Vol. I., 1883, page 316; and Vol. II., 1883, page 362). See also *Medical Times and Gazette*, Vol. II., 1879, page 214. In the *Practitioner*, Vol. XX., page 411, and Vol. XXIV., page 138, you will find reference to the use of the tincture in intermittent fever; and in that periodical (Vol. XX., page 206) a reference to its use in bronchitis, &c., the tincture and infusion being used externally and internally. The oil of Eucalyptus is powerfully antiseptic (see *Practitioner*, Vol. XXV., page 212). These are the chief references at hand. As regards the use of this drug in *phthisis*, we fear there are, as yet, insufficient data for a reply to you.

J. T. P.—Certainly—you will completely recover simply by attention to the health-details you have mentioned. In addition, use the means indicated to "G. H. Gawler," in Health No. 74. The tonic there mentioned need not be taken in your case, however. Cold sponging each morning is important, and moderate out-door exercise.

Ajax.—Have no fears; all will be right. We recommend simple food, cold sponging each morning, moderate open-air exercise, and occasional trials of Fellows' Syrup,—in your case there is no need for the prolonged use of any tonic. One point we must emphasise, however, namely, that you must not allow yourself mentally to make too much of your state or fears. In all such cases as yours, there is a disposition to enlarge upon the topic. Our best advice to you is simply to dismiss it as completely as you can from your mind, attend to business, let your society be cheerful, and above all, have no fears.

One in Need.—Try the effect of leaving off all stimulants and of taking fifteen drops *Fer Bravais* in water, thrice daily, after food. If not bettered, write again. Rest as much as possible.

Phillips (Cardiff).—Try the effect of taking the mixture recommended to "Anxious Inquirer" in Health No. 73, and let us hear from you again after a short trial of this advice. The treatment will tend to correct the acidity, and restore the tone of the stomach.

Boz.—See and follow advice to "Phillips" above. In addition, let your food be very light for a time (milk, boiled white fish, light puddings, &c.). Let us hear how you are after a trial of this advice. Glad to assist you again if you are not bettered.

Sam Mayne.—Thank you for your note. As we suspected, these quacks simply exhibited themselves in their true colours. Only by educating the public in the common characteristics of such rascals can we hope to guard people against their ways and deceptions. The result of the interview should prove a lesson to your friend in future.

Pathology.—The publisher's name of every book reviewed in Health is given in the review. Dr. Murrell's book on "Poisons" is published by Mr. Lewis, Gower-street, London, W.C. Any bookseller will procure it for you.

W. X.—In your case we should advise a consultation with a specialist in skin diseases, or with a thoroughly competent physician. All other opinions are valueless. You should visit the head of the profession in your town, or pay a visit to a London specialist. We can send you address of such, if desired, on receipt of a stamped, addressed envelope. You notably require local and constitutional treatment both.

Demosthenes.—No; what you complain of has not the slightest relation with cancer. You must keep the parts clean by washing morning and night with tepid water and carbolic or coal-tar soap. Apply a little carbolated vaseline each night. If these means do not avail, you must see a surgeon.

Scientific.—Syrup simply ranks as one of the sugary foods. These, like the starches, contribute to heat-production, and also to the evolution of muscle force. There is no special nutriment in syrup over other forms of sugar.

Paddock.—Simply read and follow faithfully advice given to "G. H. Gawler" in Health No. 74. Don't be morbid or uneasy, as you will get quite well by attention to these rules.

Pard.—No; smoking would be injurious in your present state. A Turkish bath would do good occasionally. Try Morson's Pepsine with your food, which should be very light for a time; and take fifteen drops *Fer Bravais* in water, thrice daily, midway between your meals.

Excelsior.—You are mistaken in your ideas; what you name is quite usual in healthy persons. Simply continue your cold sponging each morning, and for a time take the *Fer Bravais* as ordered to "Pard" above. Above all, steer clear of quacks, who magnify what is natural into symptoms of disease. You are quite well, and only require a little tonic medicine now and then.

Tom.—Have we not before told you that what you complain of and regard as a disease is found in most healthy persons? You have evidently worked yourself up into a morbid state of mind. All we can advise you (and all you need) is to use cold sponging each morning, live moderately, food to be light, avoid constipation, and don't take fluids late at night. The tonic above named to "Pard" should also be taken for a time. Keep your mind easy and cheerful, and don't be alarmed.

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HEALTH

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, SEPT.* 19, 1884.

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Notes by the Way

"Health is the foundation of all our physical happiness."—*Herder.*

The announcement which appeared in the *Daily News* last week, headed "An Electric Girl," will doubtless awaken interest among the readers of Health. Here is the paragraph in question:—

M. Arago, Dr. Cholet, and M. Victor Meunier, are responsible for the following extraordinary account of an electric girl. The girl, a peasant of thirteen, called Angelique Cottin, was, M. Meunier tells us in his weekly scientific article, working in a factory when a small table next to her was violently upset without ostensible cause. Subsequently, in the presence of M. Meunier, she sat on a chair held by several people, when the chair was hurled from their hands. This was tried more than once with like results, the chair being in one case broken when its holders were strong enough not to let it go. When isolation from the ground was produced by glass, none of these effects occurred. The only discomfort which the girl ever feels, is a pain in the hollow of the elbow. Before a commission of engineers none of these experiments succeeded, but it is alleged, in explanation, that the electric properties of her system have through repeated discharges lost their force, and finally become exhausted.

The production of electricity by the human subject is, we believe, still a vexed question; and although the above account purports to emanate from men of high character as scientists, it cannot be expected that the statements given will be accepted without further examination of the alleged case of electrical production. A correspondent, who has written calling our attention to the above case, says:—"If, as we know, electricity of high strength can be produced by various fishes, why should the account of 'The Electrical Girl' be regarded as improbable?" Our correspondent's query shows that he hardly appreciates the very striking differences between the cases of the girl and the fishes.

The electrical eel (*Gymnotus electricus*) of South American rivers, the torpedo electrical ray, or "Cramp Fish" of the Mediterranean Sea and other waters—a member of the skate tribe—and certain other fishes found in the Nile and elsewhere, represent the animals to which our correspondent alludes. Now in each species of electrical fish there is found an "electrical organ," that is to say, a special structure or part devoted to the production of electrical force. In the torpedo the organ consists of two honeycomb-like masses placed one on each side of the head. In the electrical eel, made famous by Faraday's experiments, the electrical organs run the long way of the body. The conditions under which these fishes produce electrical force are readily explained. Their electric organs are richly supplied with nerves. When "nervous force" is sent into these organs, it is converted into electrical force. The *modus operandi* is simply that of the "correlation of forces," seen with equal plainness in the conversion of motion into an equivalent of heat when a bullet strikes the target. Nerve-force, passed through a special organ in the fish, becomes converted into electricity—such is the *rationale* of the whole matter. The elements of an electrical cell—zinc, copper, acid, and so forth—do not produce electricity until they are brought into the requisite chemical and physical relations with one another. It is so in the case of the fish. The conditions required, as far as we know, for the production of electrical force by an animal, independently of outside means, are the possession of a special organ, which can convert the nerve-force passing through it into electrical force.

In the case of the "electrical girl," the difficulty, of course, is that of accounting for the generation of the force thus exhibited—assuming the account given to present us with a correct statement of the incident. It is of little moment to suggest that special conditions of the nervous system may favour such an exhibition of electrical force. Such a statement is too wide to prove of any value in formulating an explanation, and we must, therefore, leave the matter, for the present, as it stands. One point mentioned in the account, certainty bears a resemblance to what is known to occur in the fishes to which allusion has been made. The girl is said to have exhibited exhaustion of the electrical force after repeated discharges thereof. Such a fact is illustrated in electrical animals. At first, the shocks given are powerful and intense, but with each succeeding trial they become more and more feeble, and it is only after an interval has elapsed that the fishes can again produce a powerful discharge. This fact clearly shows that the electrical exhaustion is really a nervous exhaustion, and as such represents the serious demands which the evolution of electricity makes upon the animal frame.

We beg to direct our readers' attention to the correspondence on the important subject of "Disinfection in Scarlet Fever," appearing in the present number of Health, in reply to the criticism of Dr. Mackintosh on the papers by Dr. Jamieson, which were recently published in this journal. The topic is an all-important one, from its bearings on the prevention of infection. We observe that Dr. Mackintosh has addressed a communication to the *Sanitary Journal* on this topic. It will prove interesting to read what Dr. Mackintosh may have to say in reply to the criticisms of Dr. Jamieson and "M.D."

We are glad to notice that the lecture on "Children's Dress," delivered at the Health Exhibition by Miss Ada S. Ballin, has been published as a pamphlet by Messrs. Clowes & Sons. In the course of the lecture Miss Ballin made use of the material contributed by her to this journal last year. The pamphlet is eminently readable, and well merits careful perusal.

A really wonderful pennyworth of solid information on an important branch of home science is contained in the "Lessons in Cookery," published by Messrs. Yates, Alexander, & Co., 21, Castle-street, Holborn, London, E.C. In addition to an article by Miss Davenport Hill on "Cookery Teaching under the London School Board," this pamphlet contains sixty-eight recipes used by the Board at their cookery centres. The variety of the dishes described, and the simplicity of the directions, constitute two features of interest which are sure to commend the book to all interested in the welfare of the working classes especially. Persons of a philanthropic turn of mind could not do a kinder or wiser thing than distribute this cheap and handy pamphlet widely in schools and among the masses.

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Dr. Wilson's papers on "Sleep-Walking and Related Conditions of Mind" will be resumed in our next number.

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A correspondent, signing himself "M.D.," writes from Poplar to the newspapers, drawing attention to the fact that in the East London district water-pipes are frequently found stopped by eels. He adds that these are of the same species as those found in the water-supply during the last cholera epidemic, and that plumbers are well acquainted with such obstructions in water-pipes. The inquiry "what has the presence of eels to do with cholera?" can only be answered by the declaration that, while a live eel in water is not likely to affect the water injuriously (unless we adopt the startling and utterly-improved theory that eels convey cholera-germs), dead eels will, of course, contaminate the water and render it unfit for use. There is no necessary connection between eels and cholera, other than that they may, when dead and putrefying in cisterns, contaminate the water-supply, and, possibly, render it likely to receive and breed whatever diseases are in vogue. "M.D." mentions a case in which a family who had been drinking "putrid water for some time," at last called in a plumber, who removed "a mass of decayed eels." But, in this case, bad as it was, there was no suspicion of cholera present. It is somewhat illogical, therefore, to credit eels with being other than merely a nuisance when they stop the water-pipes. Their connection with cholera is, to say the least of it, an untenable supposition.

✣ ✣ ✣

The challenge of the International Filter Company, appearing in our advertising pages, bids fair to open up a new phase of "the battle of the filters," which was valiantly fought in our columns some time ago. Should the above challenge be accepted, we shall look for a most interesting series of trials and experiments. It would seem as though the International Filter Company were pretty sure of their ground in issuing such a daring challenge to the filter-makers of the world. We shall wait with interest to see what may be the outcome of this challenge, in which both the health-loving public and filter-makers are equally interested.

✣ ✣ ✣

The "Sanitary Institute of Great Britain" meets this year in Dublin, on Sept. 30. The President is Sir R. Rawlinson, C.B. An interesting evening lecture, in connection with the meeting, will be delivered on Oct. 2 by Dr. A. Carpenter, on "Education by Proverb in Sanitary Work." The idea that proverbial philosophy contains a vast fund of health-experience, capable of being utilised for public instruction and edification in sanitary science, is both novel and interesting.

Original Essays

"Life is not to live, but to be well."—*Martial.*

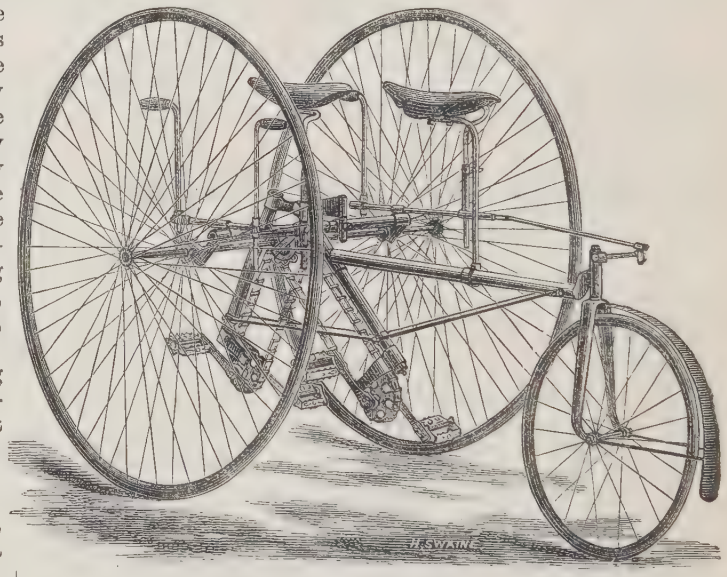
THE TRICYCLE, AND ITS RELATIONS TO HEALTH.

By Various Writers.

X.—THE TANDEM TRICYCLE.

By Sigma Smith.

Among the more recent forms of velocipedes that the growing demand has evolved has been the Tandem Tricycle, so called because devised for the carriage of two persons, each doing his, or her, share of the work of propulsion, and seated *the one before the other*, instead of side by side, as in the ordinary Sociable, of which I have already spoken. This class of machine has several advantages over its congener, the Sociable, the chief being that it is only of the width of the ordinary single machine, so that it can pass through a gateway that would be impracticable for the Sociable proper, which, in fact, requires almost as much width for passage as a carriage. The Tandem also seems to be a more speedy machine than the Sociable, and the two advantages I have named serve to counterbalance, to some extent, the rather ungraceful (to say the least of it) appearance of two riders one behind the other in such close juxtaposition. The question of stowage space is, of course, one of the utmost importance in the case of tricycles, and with the Tandem, as compared with the side-by-side Sociable, this is simplified, while, at the same time, it is a machine that will carry two persons with ease and safety.

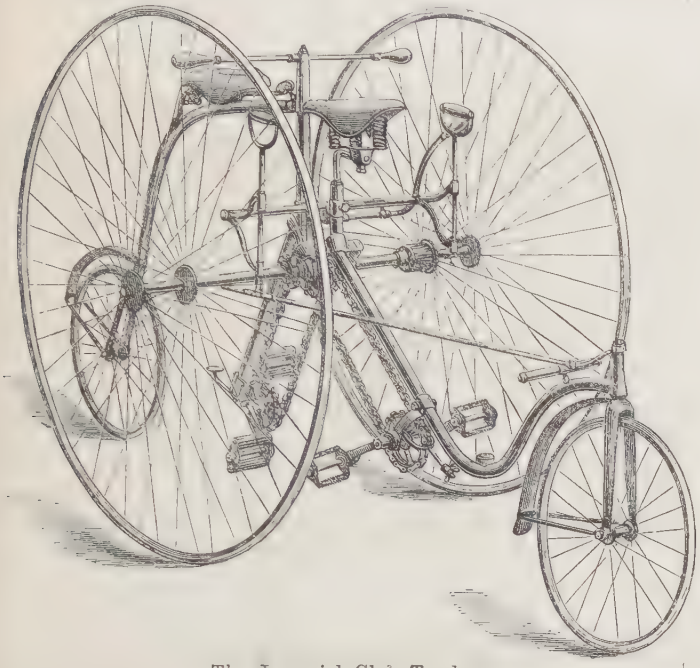


The Invincible Tandem.

As a rule, tandems are made so as to be readily convertible from the single to the double form; and, from their arrangement, this very desirable step is rendered very simple and easy of operation, as all that needs to be done is to attach, or to remove, as the case may be, certain additional parts which form the accommodation for the second rider's seat and pedals.

There are several tandems in the market, and, on the whole, I think I am inclined to give the preference to that of the Surrey Machinists Company, 128, Great Suffolk-street, S.E., named "The Invincible."

It will be seen that it is very graceful in appearance, and it is built with the utmost lightness consistent with strength. The Company have been famous for years for their hollow rims, which are exceedingly strong, and these are fitted to the tandem. Although a rear-steerer, this machine can be driven at the highest speed with every safety, owing, perhaps, in a measure to the weight of the after rider bearing well upon the steering-wheel, and keeping it well on the ground, thus causing it to "bite" with the requisite firmness.



The Imperial Club Tandem.

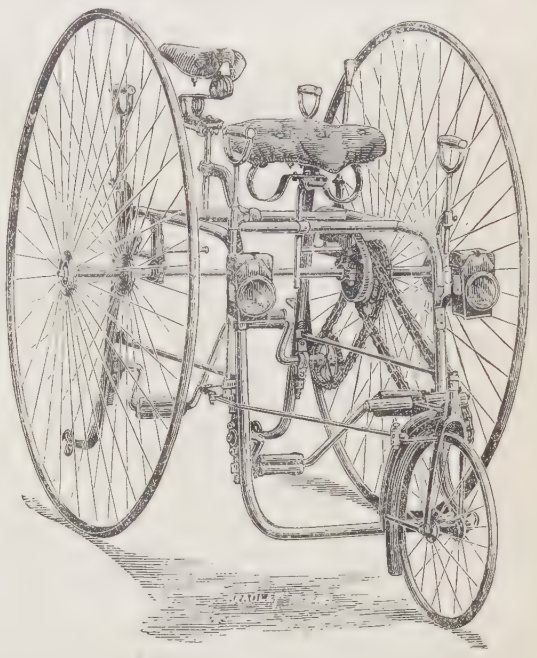
The Coventry Machinists Co. have also a very excellent tandem, equal to the above in merit, and even better in some respects as it is a "convertible," which is a combination of the Central-Driving Imperial Club and the Sandringham Club, the latter being represented by the cross-handle-bar and the trailing-wheel for the rear rider. It will be seen from the sketch that this machine has four wheels, but it is nevertheless a very easy runner, and is capable of great speed, as witness its successes upon the racing-path. It is a readily "convertible" machine, and, when without the after attachment, forms a capital single tricycle for one rider only.

The other tandems worthy of special mention are the Centaur, made by the Centaur Cycle Co., Coventry—a most excellent machine, which is highly spoken of, and is very sightly and compact; the Humber Tandem, made by Messrs. Humber, Marriott, & Cooper, of Beeston, Nottingham, which is undoubtedly the fastest machine of all, so far as existing records go, but which requires a little management and practice before it can be used with safety; and the Rotary Tandem, made by Rudge & Co., Coventry, which has the additional advantage of being built so narrow as to pass through any ordinary door and stand in the entrance hall. Any one of the machines named will be tolerably sure to be well made and reliable, and to give every satisfaction to the purchaser and his "sisters, and cousins, and aunts," not to mention wife, and sons, and daughters, who may from time to time be "taken out" on the spare seat.

Swimming and Ling's Swedish Exercises.—Mrs. Florence Williams, Certificated Teacher. Schools and private families attended.—The Crown Baths, Kennington Oval, S.E.—[Advt.]

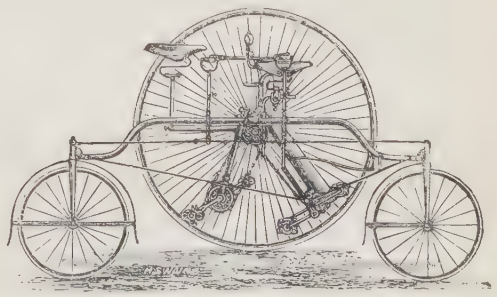
GEARINGS.

A very important feature in connection with tricycling is the gearing "up" or "down" of the driving-wheels. To "gear up" is to have the lower toothed wheel connected with the cranks larger than the upper toothed wheel on the axle, which has the effect of revolving the driving-wheels at a faster rate than the cranks are moved round. By this means small wheels can be made to vie with the larger wheels in the extent of ground covered with each revolution of the pedals, and thus to attain the same rate of



The Centaur Tandem.

speed by corresponding movements of the feet. For instance, my "Carver" tricycle has 42-in. wheels. The lower toothed wheel near the pedals below has 18 teeth, and the upper cog-wheel on the axle has 14 teeth. Forty-two divided by fourteen gives 3 in. as the value of each cog in wheel diameter, and as there are four more cogs below than above, it follows that the machine is geared up 4 cogs, or 12 in., so that it runs exactly as if the driving-wheels were 54 in. in diameter, covering a little over 14 ft. of road with each revolution of the pedals. This arrangement, of course gives speed, but requires, perhaps, some addition to the power applied, although this is more than neutralised by the slower move-



The Rotary Tandem.

ment of the pedals. I can confidently suggest this combination as a very desirable one for a rider of average strength for ordinary road riding work, as the machine with small wheels being so much lighter, there is no difficulty in ascending hills of ordinary gradient and mode-

rate length. This especially applies to machines of the "Humber" type.

My Imperial Club front-steerer has 50-in. wheels, and has eighteen teeth on the lower wheel and sixteen on the axle cog-wheel, so that it is geared up to 56¼ in. I have ridden this machine some thousands of miles, over all sorts of roads, and do not find the gearing too high with this combination, as I can manage to ride at a fast rate along the level, and surmount most hills, even when carrying a considerable quantity of luggage (which, by the bye, it is well to avoid, if at all possible to send the baggage on from stage to stage by train when touring), including a complete set of photographic apparatus.

To "gear down" is of course to reverse the arrangement, and those who live in a very hilly country will find much ease in doing this, but they must in that case be content with a reduction in the normal speed of travelling. It is impossible to lay down any hard and fast line as regards the *extent* of "gearing down," as that so much depends upon the size of the driving-wheels used, the nature of the country, the weight of the machine, and the powers of the rider. Should any reader of Health wish to be advised upon this point, I should be most happy to do so privately.

PUBLIC PARKS AND OPEN SPACES.

By George Howells.

CONCLUDING PAPER.

While still engaged in fighting for Epping Forest in the Court of Chancery and before the Epping Forest Commission, the Corporation was engaged in other enterprises of a similar kind, though not so extensive or costly. In 1874, it acquired a splendid estate at West Ham, consisting of 14 acres, at a cost of £18,544, and opened it as a public park. In the month of June, 1879, a notice appeared in the newspapers to the effect that the common known as Burnham Beeches, with its noble trees, and 175 acres of freehold land adjoining, was to be sold by auction. In the particulars of sale attention was called to the commons' rights, which were declared to be unimportant; and expectations were held out to the purchaser, that at no distant date he would be able to inclose this far-famed beautiful open space. In any case there was a danger of the ancient beeches being cut down by some unsympathetic purchaser, and the beauty of the place being thereby destroyed. The Kyrle Society, together with the Commons Preservation Society, at once took action to prevent, if possible, the destruction of the common. With the view of preserving this most beautiful piece of woodland scenery, a deputation waited upon the vendors' solicitors, and succeeded in obtaining the refusal of the property, at a given price, for one week. A deputation of the two societies then waited upon the committee of the Corporation, whose duty it was to deal with a subject of this kind, with the object of inducing the Corporation to purchase the property, it being just within the limits of the twenty-five miles radius, as defined in the City's Private Act. The only difficulty about the matter was the 175 acres of freehold—the Act providing only for common lands. This difficulty was got over by the promptitude of Sir Henry Peek, who agreed to purchase the freehold land adjoining the Beeches, which was included in the notice of sale. The Corporation then consented to purchase this picturesque property, and to dedicate it to the enjoyment of the public for ever. Burnham Beeches consists of 375 acres, the cost being £7,624, or, with extras to the end of last year, £8,921. The latest acquisition by the City Corporation were the Coulsdon Commons, in Surrey. These consist of:—

	Acres.	Roods.	Poles.	Total cost. £. s. d.
Farthing Downs Common	121	1	3	
Riddlesdown Common.....	78	3	5	
Coulsdown Common.....	77	3	8	
Kenley Common	70	2	20	7,133 10 0
Total average.....	348	1	36	

These commons were acquired under the City of London Open Spaces Act, 1878, and were opened with much pomp and ceremony by the Corporation, Mr. Shaw Lefevre the Chief Commissioner of Works, being present to represent the Government. Besides those above mentioned, the Corporation has laid out Bunhill Fields Burying-ground—four acres—at a cost of £3,015; and the inclosure around St. Paul's, at a cost of £6,577.

The preceding sketch indicates rather than exhausts the provision that has been made in the matter of open spaces, as breathing and recreation grounds for the people chiefly inhabiting what is termed Greater London, by means of legislation. The metropolis is, however, favoured beyond most cities and towns in having a number of squares, gardens, and greens, which, though private, in the sense of being open only to the immediate residents of the locality, are, nevertheless, so many actual breathing-grounds for the neighbourhood in which they are situate, and as such contribute to the general healthfulnesss of London. Many of these squares and gardens are perfect little model parks, well and trimly kept, many having noble trees, fine shrubs and plants, and are radiant with foliage and flowers. Others, on the contrary, are in a forlorn condition, the grass, shrubs, trees, and flowers being sadly neglected. The difference in the appearance of the two categories may be due to various causes, but the main cause is the lack in the latter case of a proper authority for doing the necessary work, or seeing to its being done.

The aggregate number of such open spaces in the metropolis is so great, that only a few of them can be here enumerated. In the more aristocratic part of London there are, among others, Grosvenor-square, Berkeley-square, Hanover-square, St. James's-square, St. George's-square, Belgrave-square, Eaton-square, Eccleston-square, Cleveland-square, Leinster-square, Oxford-square, Onslow-square, Sloane-square, Portman-square, Cavendish-square, Porchester-square, Pembridge-square, Powis-square, Sussex-square, Thurlow-square, Wilton-square, Chester-square, Hyde Park-square, Connaught-square, Hereford-square, Warwick-square, Trevor-square, and some others; and also some gardens, such as Prince's-gardens, Pembridge-gardens Cleveland-gardens, Campden-hill-gardens, &c., &c.

Another group comprises Bedford-square, Blandford-square, Bryanston-square, Russell-square, Tavistock-square, Brunswick-square, Bloomsbury-square, Gordon-square, Manchester-square, Torrington-square, Woburn-square, Euston-square (now called Endsleigh-gardens), Gray's-Inn-square and gardens, Soho-square, Milner-square, Gibson-square, Beaumont-square, Belsize-square, Cloudesley-square, Nelson-square, Surrey-square, Tredegar-square, and numerous

Scott's Midlothian Oat-Flour.—Messrs. A. & R. Scott, of Kingston, Glasgow, and Finsbury-square, London, have prepared a singularly pure and nutritious "Oat-flour," which bids fair to take high rank among the food products which are specially adapted for infants and invalids, and for the use of dyspeptics in particular, whose digestion is weak, and whose stomachs refuse to assimilate foods of ordinary kind.—Ed. Health.—[Advt.]

Pure Water is such a vital necessity that, without it, illness is certain. None are more prone to the ill effects when impure than the young. To ensure a pure supply send a post-card to the London and General Water Purifying Company, Limited, 157, Strand, London, W C., who will return particulars post-free.—[Advt.]

others east, west, north, and south, in all parts of the metropolis. Considerably over 160 could be enumerated, of squares alone, besides which there are other open spaces, designated gardens, and some dozen or so of greens. There are also six cricket-grounds—Kennington-oval (11 acres), Lord's (8½ acres), Prince's, at Brompton, Catford-bridge, Eton and Middlesex, Chalk-farm, and Vincent-square, Westminster; besides which cricket is allowed in six of the public parks, and on over a dozen of the commons before referred to. Four additional subscription-grounds have also been opened for cricket during the last few years, and some half-dozen croquet-lawns and lawns for lawn-tennis for ladies. There are also four or five places for athletic sports, the grounds of some of which are fairly well kept, considering the purpose for which they are used.

Though not an open space in the same sense as those before mentioned, London is peculiarly favoured in having a splendid water-way right through the very heart, so to speak, of the City. The River Thames, notwithstanding its many drawbacks, constitutes a great breathing lung for the whole of the metropolis. Its water may not be quite as pure as could be desired, but swans, which are rather dainty in the choice of their water, may be seen floating on its bosom as far down sometimes as Blackfriars Bridge; and the delicate trout finds its way far down the stream at times. The north-east can also boast of its River Lea, a favourite resort for angling and boating. The foregoing remarks, and the preceding sketch, will give some slight notion of the vast number, extent, and immense importance of the provision, of one sort and another, made for and at the command of Londoners for the purposes of healthful recreation and enjoyment, and will explain why it is that the Metropolis, with its stupendous population, is, as a rule, so healthy and enjoyable to live in.

Inherited Sentiment.—Professor Seeley, in an article on "Goethe," published in the August number of the *Contemporary Review*, offers the following interesting remarks on the subject of inherited sentiment:—"Some of those who watched Rossetti at his work thought they discovered that he did not regard his own imaginations seriously . . . Similarly, Mr. James remarks of Hawthorne, that it would be a great mistake to infer from the constant recurrence in his romances of the ideas of sin, retribution, and the stricken conscience, that Hawthorne himself was under the influence of such sombre ideas, the truth being that he was an easy-going, contented, and comfortable man. But Hawthorne's Puritanic ancestors took these ideas seriously, and Rossetti's Italian ancestors in like manner furnished the beliefs which in their secondary form suggested Rossetti's pictures and poems. Of all artists, it is Scott who is richest in this kind of inherited sentiment. The shrewd, good-natured, somewhat worldly Scotch lawyer lives in a world of grandiose thoughts, opinions, sentiments, and convictions, out of which he composes at his ease a whole literature; and yet, if you ask him what he thinks of these thoughts, opinions, sentiments, and convictions, he can only smile and evade the question. 'Superstition,' he says candidly, 'is very picturesque, and I make it at times stand me in good stead; but I never allow it to interfere with interest or convenience.' They were serious enough to his ancestors, these ideas of clannish devotion, of chivalry, of witchcraft, and demonology; but to him they have come simply by inheritance. All he knows is that when he unlocks the ample chambers of his imagination he finds them there; that they work up into capital stories, if hardly fit for practical use; that, in short, they are the old furniture of the house in which Nature has placed him."

Personal Health

"Be timely wise;
With health all taste of pleasure flies."—*Gay.*

SMOKING AND HEALTH.

By Dr. Félix Bremont.

(*Concluded.*)

Larouse says that, although it is admitted as a principle that only the cigar is in good taste in the street, the pipe is, in the privacy of home, the relaxation of persons in the highest social classes as well as of the masses. The observation is just. All great smokers use the pipe. The poor smoke a modest clay pipe; the rich, a meerschaum set with silver and amber, carved and engraved like a precious stone; poor and rich, consuming much tobacco, burn it in an incombustible bowl with a tube attached; whatever it may be, it is still a pipe, and, if it costs more, it is no better than the cheaper one, but rather the contrary. If all pipes were equally durable, they might be classed, according to their merit, as follows:—1. Soft earthern pipe; 2. Meerschaum; 3. Hard earthen pipe, white or coloured; 4. Wooden pipe; 5. Porcelain pipe; 6. Metallic pipe.

The white earthen pipe, porous and permeable to liquids, is put first, because it is a good absorber of nicotine; the metallic pipe is put last, because it allows all the noxious products formed during the combustion of the tobacco to reach the mouth of the smoker. The meerschaum, which immediately follows the clay pipe, deserves its place only on condition that it is not too old. If it is seasoned, it is as bad as a wooden or porcelain pipe. The seasoning, of which poets have sung, may be full of charms for the amateur; to the hygienist, it simply indicates that the pipe has had its day, and is now saturated with tobacco-juice, and that it must be replaced by another one, or be passed through the fire to purify it, as is done in the coffee-houses of Holland. Every old pipe, browned with long use, leaves on the lips and tongue an acrid and strong-smelling liquid, which irritates the tissues and corrodes the mucous secretions. When it has reached this condition, the finest meerschaum is no better than the meanest scorch-throat. Independently of the substance, the form of the pipe has an influence on the proportion of noxious ingredients which tobacco-smoke contains.

Turkish and Indian pipes, in which tobacco is burned slowly, discharging its smoke through a liquid, arrest a large proportion of the poisonous ingredients. The bowl of the German pipe retains the greater part of the oily products; the Dutch and English clay pipes retain less. The metallic pipes of Thibet, becoming heated, carry to the mouth not only brown liquids saturated with nicotine, but also a smoke hot enough to burn the tongue. The pipe should, then, be long, and in order that the smoker may become convinced of this I submit to him these lines by Dr. Buisson, taken from his article on "The Lips," in the "Dictionnaire Encyclopédique des Sciences Médicales":—"It is not without reason that the popular tongue has energetically described by the name

A Valuable Invention.—It is gratifying to learn that Mr. R. Adams, of 17, Blackman-street, London, S.E., whose fanlight-openers and silent door-springs are being extensively used, has received large orders for his Patent Reversible Window. The sashes, although they slide up and down in the usual way, can be instantly turned inside out, enabling anyone to clean each side of the glass with ease, while standing in the room.—[Advt.]

brûle-gueule (scorch-throat), the pipe with a short stem. Not only is this stem impregnated with the empyreumatic matter with which old pipes become browned in seasoning, but it is heated to such a degree as to subject the lips to a local elevation of temperature—a kind of chronic burning, which causes a thickening of the epithelial layer in the same manner as the contact with hot bodies increases the epidermic secretion on the hands of subjects exercising certain professions." It should be added that every smoker should have his own pipe, and not use indifferently any one that comes to hand.

Whether we smoke a cigar, a cigarette, or a pipe, two hygienic precepts should not be lost sight of: The first relates to the atmosphere, and may be formulated; it is less injurious to smoke in the open air than in a room, in a large room than in a small one. Be careful, then, smokers, to ventilate liberally and frequently the apartments in which you smoke your tobacco. The second precept is a question of cleanliness. If it is good for every one to attend frequently to the washing of his mouth and teeth, the usefulness of the habit becomes a rigorous obligation to every one who is addicted to the pipe, the cigar, or the cigarette. A wet cloth passed over the gums and teeth in the morning may possibly be enough for persons who do not smoke, but the brush is indispensable for smokers. A simple gargle of aromatised warm water is better to neutralise the odour of tobacco than the best scented pellet.—Translated from the *Journal d'Hygiène*.

A statistician has been calculating anew the mortality of the globe. He has discovered the number of deaths to be 67 every minute, 97,790 every day, or 35,630,835 every year. The births exceed the deaths by three per minute, running to 100,000 every day, and 36,792,000 every year.

Dr. E. Janssens, the Chief of the Health Department of the City of Brussels, has made a computation of the mortality from cholera at Toulon, in the epidemics of 1835, 1849, and 1884. In 1835 the deaths were 4·8 per cent. per 1,000 inhabitants; in 1849, 14·0 per 1,000; in 1884, 47·0 per 1,000. This is a severe commentary, certainly, on the cumulative effects of continued insanitary conditions.

Until recently the large fruit-dealers of Philadelphia were in the habit of depositing the refuse of their stores on the public dumps in the southern part of the city. The health board has ordered this practice stopped, and the firms request information as to the disposition they shall hereafter make of it. It was suggested that this refuse be taken out to salt water and there dumped, but the subject was referred to the sanitary committee.

Popoff on the Treatment of Cold in the Head by Cold Ablutions of the Feet.—In the *Russkaia Meditz.*, No. 10, 1884, p. 234, Dr. Prokop Popoff, of Minusinsk, Siberia, states that in more than 300 cases of acute and chronic rheumatic coryza he used with great success the following simple plan of treatment:—Twice daily (in the morning on rising, and at night on going to bed) for two days the patients are ordered to wash their legs from the sole up to the knee with ice-cold water, and to subsequently rub the washed parts with a dry towel, or a piece of rough linen or cloth, until a vivid redness and feeling of warmth appears. The whole procedure takes not more than five minutes. No other measures or precautions are required. A striking improvement follows already on the next day; in fact, the improvement is usually so great, that many patients content themselves only with one day's treatment, regarding themselves as cured.

The Family Circle

"The child is father of the man."—*Wordsworth.*
"In bringing up a child, think of its old age."—*Joubert.*

THE CAUSES OF CURVATURE OF THE SPINE.

By F. Churchill, F.R.C.S.

Surgeon to the Victoria Hospital for Children.

(Reprinted from the *Medical Times*, by permission of the Author.)

The influence of posture in the development of the bony framework of the body is a subject which cannot be adequately discussed when considered only in connection with regulations for school management. The causation of spinal curvature needs a much wider range of thought for its solution.

Therefore to attribute "the largest proportion of deformities and of cases of defective eyesight to the faulty attitudes induced by badly-constructed seats and desks, together with want of sufficient and proper exercise, especially among girls," as Mr. Noble Smith did at the International Health Exhibition Conference, is to arrive at a conclusion without sufficient data.

The fact that girls suffer much more frequently than boys from spinal curvature is well known to surgeons who have made a special study of the diseases of children. To focus the blame for these distortions almost entirely at the door of the modern schoolmistress is to show an imperfect conception of the multiple causation of this deformity. Deportment lessons have their proper place, I consider, in every well-regulated school. Rigid rules as to general deportment ought, I think, to favour spinal rigidity, rather than relaxation. The breach and not the observance of such rules must encourage awkward habits of posture in young people inclined to curvature of the spine.

If we adopt Mr. Noble Smith's argument, we should expect to find an increase of curvatures of spine among upper-class young ladies, and especially those who go to "boarding schools." Home-taught young ladies, with plenty of sofas to lie on and other *articles de luxe*, ought to be relatively free from such deformities.

My experience tends in a precisely opposite direction, and I believe I have one of the largest surgical clinics in London for children's diseases. I prefer to discuss this question on broader principles.

I find that the children of the poor are blessed with more solid backs and larger bones. Yet these suffer far more than the elegant, spider-like bodies of "the upper ten." And why? Children with broad chests have wide haunches with prominent ilia (or haunch-bones). The spine is therefore relatively at a greater distance from the iliac crest (or ridge of the haunch) where all the burdens have to be borne, and so the lateral ligaments (or ties) of the spine yield to the leverage action of the many burdens which are carried by poor children on the side opposite to the curve.

Medical and Sanitary Exhibition, 1881.—Reward of Merit.—International Health Exhibition, 1884.—Stand 69.—Diabetes. Van Abbott's Gluten Bread, and all other suitable Foods for Diabetics, Dietary Table, Menu, Cooking Receipts, and Price List, post-free on application. Delicate Children. Van Abbott's Hypophosphite of Lime Biscuits, for Children suffering from Debility, Deficiency of Bone, or Ricketts. See the *Lancet* and Health. Constipation. Van Abbott's Bran Biscuits. Dyspepsia. Van Abbott's Malt Biscuits. Van Abbott's Vegetable Bread and Milk, Saccholac for Infants, Imperial Granum, Rolled Avena, and all American Cereals for Infants and Invalids. Hathorn Table-Water direct from the Springs in Saratoga, U.S.A. G. Van Abbott, 5, Princes-street, Cavendish-sq., London, W.—[Advt.]

London children have not the stamina and solid framework of country lasses, and their mothers partake of the general deficiency of milk secretion. The "fat of the land" is not their portion. The hygienic derangements of London slums require no comment from me as to their baneful influence upon the health of the rising generation. The family arrangements usually provide that the elder girl, say from seven years of age, shall "mind the baby," carry it upstairs, and take it for "an airing;" whereas cottage babies have to shift for themselves at the cottage door, or on the roadside. There is one point of agreement between Mr. Smith and myself, when he alludes to the beneficial effects of outdoor games, swimming, &c. Let the girls have as much as the boys, if they like, of sports and active exercise for all the muscles. Nevertheless, the "walks in stately file," condemned by Mr. Smith, have their proper place in school hygiene, as also drilling, in moderation, to brace up the shoulders.

I prefer to combat these deformities, and to provide against them, by the use of general principles of treatment, so as to strengthen and consolidate the fabric of the body in its totality.

The tendency of specialists is, I think, to direct too much attention to the local disease or deformity. Let us attend, first of all, to improvement in the general health and the provision of suitable methods of school training, outdoor exercise, calisthenics, &c., so that these deformities may be avoided as far as possible.

Mr. Roman's plan for the methodical exercise on scientific principles of each group of muscles, in order to attain the highest possible development of every part in perfect harmony and symmetry, is the method, which, I think, deserves to be more generally understood and accepted.

In short, the cause of spinal curvatures will, I think, be found more frequently traceable to the pernicious system of burden-bearing by young and delicate children, badly fed and improperly housed.

Curvatures of the spine in upper-class society occur much less frequently, and may be traced to children having a general laxity of the ligaments; to infantile causes of degeneracy, as, for example, improper feeding; to scrofula, rickets, and other inherited diseases, and to parental follies, &c.

We know how extensively rickets prevails among children living in unhealthy dwellings with everything to favour poverty of blood and defective growth. The spine quickly participates in this retarded growth. No wonder that the articulations yield to the super-incumbent pressure. The bodies of the vertebræ (or bones of the spine), their processes, and other structures, in consequence of undue softness and compressibility, are easily pressed out of shape, and slowly yield to the inclination from the middle line, which weight-carrying is sure to produce in delicate, overburdened children.

The nature of rickets is still, I believe, unknown. I think we must go further back for the causation than the hand-feeding and general management. The infant betrays its proneness to rickets very early. May we not trace the cause to a special condition of the mesenteric glands (or those through which the digested food reaches the blood) whereby the chyle and products of digestion, being obstructed in their transit to the thoracic duct, fail to reach the circulation in sufficient quantity? And so the bones, which of all tissues of the body are the most removed from the centres of nourishment, have to suffer most from imperfect assimilation of the elements of the food.

Or, again, may we not trace the causation to an inherited cause? For example, we know that one of the earliest signs of rickets is frontal (or forehead) perspiration during sleep. If we take the temperature of such infants, we often find considerable elevation of body heat. Oft-repeated feverishness must favour the absorption of the earthy salts from the bones, such as we find so commonly in fevers, &c. The bones soften in consequence, and so become nodulated and enlarged at all the joint-extremities, where excessive movement causes the cartilages to expand and become spongy in texture.

To oblige such children to carry burdens or to toil like healthy children would be certain to cause spinal curvature and other deformities.

It is stated that 30,000 women spend their lives in driving and steering the canal boats in southern and midland England.

No Use for His Teeth.—In an entertaining little book just published by the Rector of Burwash, entitled "Sussex Folk and Sussex Ways," appears the following little anecdote, which has an amusing interest of its own. A labouring man, out of work and hungry, went one morning to the surgery of a neighbouring parish doctor, sat down, and asked to have one of his teeth taken out. The doctor opened the man's mouth and looked at his teeth, but, seeing nothing amiss, said, "Which is the tooth, friend?" "Oh, e'er a one you like, sir," said the man. "I've got nothing for 'em to do, so I thought I might as well get rid of 'em." We are glad, for the credit of the profession, to hear that the doctor, appreciating the joke, gave the man the wherewithal to "go and get his teeth a job for one day, at all events."

Summer Diet.—Two good rules in diet, good in summer or winter, and at all times—apparently trite, because so often repeated, but still alive and useful while men live and have stomachs—may be thus stated:—Rule first is, as the *Ledger* has often repeated, "The rule of not *too much*." In the languor of summer one is tempted to the use of stimulants more or less hurtful, but all to be included under the general term of "irritants." These create a factitious appetite, which demands an over-supply of food, and leaves the eater no better off, so far as comfort is considered, than he was before eating. If you don't wish to eat, take care to eat but little, and that of the most digestible food, till the desire comes naturally. Just take enough to support nature, and good digestion will provide an appetite for the coming meal-times. Rule second is, the rule of not too *mixed*. Everybody has smiled at the story of the innocent young person to whom a seltzer powder was prescribed, and who dissolved the separate components in separate glasses and swallowed first one and then the other. Astonishment and rebellion arose in his stomach at the entrance of two such uncongenial visitors. The truth is, however, that this experiment is very often unconsciously repeated in still more unpleasant and even dangerous form. People swallow, without thinking, and often without knowing, incompatible and warring articles of food or of refreshment at the same meal, and thus turn their stomachs into chemical laboratories or fermenting tanks. Such experiments are sure to make disturbance and various internal commotions, disagreeable and perilous in their very nature. It should need no chemical analysis to tell us this; experience should be enough.

COCA OR CUCA LEAVES.—The new stimulant, gives renewed life and vigour to the *Weary* and *Overworked*. Dr. Blunt, of Northampton, says:—"The recuperative powers of this restorative are truly astounding." Sample packets, together with medical and scientific opinions, 13 stamps, post free, from J. T. Marks & Co., 17, Newcastle-street, Farringdon-street, E.C.—[Advt.]

Public Health

"Health is the first Wealth."—*Emerson.*

BATHING AND CHOLERA.

Dr. Chadwick writes:—"While much preventive service may be effected by the cleansing of places, very extensive prevention may be effected by active measures for the cleansing of persons. At the last epidemic visitation of cholera, which fell severely upon Limehouse, the children of the pauper half-time school were distinguished by their entire exemption from any choleraic attack. The distinction was due to the careful head-to-foot washing with tepid water. The like distinction of immunity was presented in other half-time district schools in the metropolis. Indeed, we had experience of its efficiency in ordinary times, which enables me to present it as a factor of at least one-third in sanitation. Thus, in a children's institution, where the death-rate was twelve in a thousand, it was pervaded by sewer-gases. These were cleared away, when the death-rate was reduced by one-third. Then followed provision for regular daily head-to-foot ablution, when the death-rate was reduced by another third.

The experience is similar with the washed populations of prisons. Sewer-gas got into the Pentonville Prison, and the cholera got in with it; but the other well-situated and well-drained prisons, with their well-washed populations, presented examples of entire immunity from the epidemic, as they do now from the ordinary epidemics which ravage the outside populations. Nurses trained on Miss Nightingale's principle, who devote themselves to the speciality of nursing in the most infectious cases—those of scarlatina—give themselves head-to-foot ablutions with tepid water twice a day, and give themselves a daily change of clothes, and, with attention to ventilation in the patient's bedroom, and to other precepts of Miss Nightingale on nursing, secure complete protection to others as well as to themselves. Health officers who had gone without harm through the most dire plagues declared to the Academy of Medicine of France that they owed their security to the double head-to-foot washing with warm water.

It is satisfactory, amid the low retrograde sanitary administration, and the great loss of life occasioned by it in France, to adduce a valuable sanitary improvement from thence. The colonel of an infantry regiment, Colonel Louis, has introduced a method by which he gives a superior cleansing with tepid water at a tenth of a penny per head per man. The man undresses, steps into a tray of tepid water, and after being wetted with a spray, soaps himself thoroughly, when, with a two-handed pump, a powerful spray of tepid water washes him from head to foot. Perhaps there is a double soaping. This is really a most valuable sanitary invention. The work is done better with five gallons of water, against eighty of the bath, and in less than five minutes of time instead of twenty. In Germany they are advancing upon it in rapidity by arrangements of recesses, in rows, in which men enter in squads, and are submitted to simultaneous douches of tepid water.

In fact, the cleansing by the jet has been introduced into Australia for bleaching the fleeces of sheep. They tumble the sheep into tanks of warm soapsuds. They are taken out and a powerful jet of warmed water is directed upon them, when the blanching is effected, which reduces the weight of the fleece by one-third, at an expense of twopence each. Apparatus on the principle stated ought to be attached to schools, for relief from the foul atmosphere of filthy-skinned children, which generates the eruptive diseases, and is particularly needed for the poorer classes of the single-chambered families, who have no convenience for the process. It should be stated, as being proved, that a washed pig puts on a fourth more flesh with the same amount of food that is consumed by an unwashed pig. The foremost direction of sanitary administrative force might well be given to the general application of the principle of washing with tepid water by the jet as a most effective preventive factor, on which a proclamation may be issued and promulgated from the pulpit on the text, 'Wash and be clean,' as a defence against the coming pestilence, as well as against those we frequently have with us."

Scott's Midlothian Oat-Flour.—There is no preparation which can be assimilated with greater facility than such a flour as this. Those who suffer from indigestion might substitute for their ordinary breakfast materials this flour, prepared according to the recipe given by Messrs. Scott and printed on the tins.—Ed Health.—[Advt.]

Suicide is of much more common occurrence in Germany than in England. In the forest called Grunewald, near Berlin, there is a special place of burial for those who have put an end to themselves by hanging or otherwise in the forest. A notice has just appeared in one of the Berlin papers that, during the last few weeks, scarcely a day has passed without the body of a suicide being found and buried there, so that the burial-ground is now almost full. But Saxony is even worse than Prussia in this respect. The rage for suicide seems to increase relatively in a greater proportion than the population. In 1872, there were in Saxony 687 suicides, *i.e.*, 266 to a million inhabitants; in 1877 this number had increased to 1,114, that is, 403 to a million inhabitants; in 1882, there were 1,872; and in 1883 (last year), 2,004 suicides, of whom 1,081 were of the male and 923 of the female sex.

A Pocket Apparatus for Air Analysis.—Since the unwholesomeness of the air in a room or hall is nearly proportional to the percentage of carbonic acid (carbon dioxide) in the air, Dr. Wolfert, of Kaiserlautern, has devised a very simple apparatus for estimating this suspicious constituent *approximately*, to be used in school-rooms, sleeping-rooms, and public-halls. A small glass cylinder is filled to a certain mark with perfectly clear lime-water, a very cheap article, to be had at any drug store, or easily made at home. He then takes a small indiarubber ball or bulb, with a glass tube attached. On squeezing the ball until all the air is expelled, it will, of course, fill itself with the air of the room. The tube is then allowed to dip into the lime-water, and the air made to bubble through it by slowly but steadily squeezing the ball. When all the air is expelled, remove the tube from the lime-water and allow the ball to fill again, taking care that no lime-water is sucked into the tube or bulb. This is repeated until a precipitate of carbonate of lime is formed which obscures the numbers on the bottom of the cylinder. The number of times it must be repeated to effect this end increases with the purity of the air. Accompanying tables give the percentage corresponding thereto. If the lime-water is rendered so turbid as to be opaque by less than ten repetitions, the air is very bad, and cannot be breathed with impunity. If it requires from ten to twenty repetitions, a person may remain there for a short time. When more than twenty repetitions are necessary, the air is good enough for ordinary purposes. In sick-rooms it should require at least thirty, and in contagious diseases forty to fifty. The purer the air, of course, the longer time the tests will take.

Jottings from the Journals

"Th' ingredients of health and long life are
Great temperance, open air,
Easy labour, little care."—*Sir Philip Sidney.*

The Dress of Women and Children.—Dress is a thing more variable than the changes of season, which it is supposed to follow, and opinions upon it are infinitely more varied than its forms. With reference to this subject, taste has long existed as a mere sense, not much affected on the whole by mental processes. Of late a change has come about; it has multiplied and strengthened its connections with the intellect, and is giving forth judgments and laws of clothing founded on the teachings of physiology. An effort in this direction is embodied in a paper by Mr. Francis Vacher on the rational dress of women and children. It contains some serviceable hints as to the clothing of infants, particularly where it aims at shortening the inordinate length of skirt in which their lower limbs are usually entangled. The use of woollen underclothing at this and all ages is another point which receives a just recommendation. The author certainly enters on debatable ground when he insists that children at a later age should be warmly clad from neck to toes, with no part of the body exposed save the head and hands. He seems, in this part of his paper, to violate his own principle by carrying into active childhood the swaddling system which he condemned in infancy. There can be no valid objection to letting even young children go about with bare knees and forearms, as one commonly finds they do, provided they have been accustomed to this degree of exposure from infancy, and have the rest of the body comfortably covered. With regard to the special dress of womanhood, Mr. Vacher has fairly earned the thanks of thoughtful members of the female sex by daring to substitute for the conventional corset a closely fitting under-jacket. The corset, with its stiffness and its "shapeliness," however it may be modified, is an untruth against nature, which can only be remedied by being done away with. An essential point is the distribution of the weight of clothes. Every physical necessity requires that this pressure should fall upon the arch of the shoulder or pelvic bones, and not, as we now find, upon a dress-girdle more or less tightly drawn round the middle of the body.—*Lancet.*

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Fatalities by Poisoning.—In one of the daily newspapers last week there were, in one day, recorded two cases of death by poisoning, and one by suffocation in an ammoniated atmosphere. The latter was the case of a workman at some oil works, who entered an ammonia tank for the purpose of cleaning it, and was suffocated; another workman, who accompanied him, was rendered unconscious, but was rescued and ultimately recovered. The first of the cases of poisoning was that of a young lady, who, suffering from an attack of neuralgia, took a dose of chloral (which drug she had previously used); it turned out to be an overdose, and she died from its effects. The second case was one in which a little girl, two years of age, drank a quantity of sulphuric acid from a bottle which had been inadvertently left on a window-sill by her mother for a short time. Medical aid was quickly procured, but the little one died in a few hours. In the same daily paper of Tuesday this week, there were recorded two cases, in one of which a woman swallowed by mistake a quantity of carbolic acid. She was removed to the Royal Infirmary, and subsequently recovered. In the other, a woman administered to a boy, aged twelve, some drops from a phial supposed to contain chlorodyne; symptoms of irritant poisoning supervened, and the boy died at midnight. Of course, the subsequent symptoms may simply have been a development of the condition which led to the administration of the medicine. A *post mortem* examination was, however, held, and the result of it should yield accurate information on the question.—*British Medical Journal.*

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Preparations Against Cholera.—More, far more, can be accomplished now, in the way of safety and protection, than when the disease is upon us. Instant and energetic action should be taken towards cleansing the city. The finding and removal of all fifth-heaps, whether conspicuous or hidden in back yards or cellars; the ventilation and drainage of dwellings, and especially the prevention of overcrowding and consequent house-air poisoning, and the closure or removal of all buildings which are dangerous to life and health. The inspection force should be doubled or trebled, and their reports of dangerous places acted upon promptly. The people should be awakened to the threatened danger, and every effort should be made to fortify our city as speedily as possible to resist the approaching foe.—Dr. Lindslay, Health Officer of New Haven, Conn.

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Quacks and Quackery.—Modern quackery, although dwelling in high places, condescends to an acquaintance with low estate. It is not only in secret that the worst forms of quackery flourish around us at present. Gangs of quacks infest all our large towns, and distribute their often indecent literature broadcast through our streets. Recent prosecutions and convictions in Glasgow for this latter offence should have the effect of teaching these groundlings that they are not to be permitted to make the public thoroughfares the scene of their nefarious operations. And a recent removal by the London College of Surgeons from its list of members of a qualified medical man, whose advertising practices had become notorious, shows that the repression of these practices is not a matter of outside law alone, but one of internal medical reform as well. After all, the abolition of quackery is a topic of grave moment, in face of the single fact that it is chiefly the poor upon whom the quack preys. If rich and well-to-do patients choose to allow themselves to be plundered by the quack we need feel little sympathy for the disappointment and disgust they must sooner or later experience. They possess the means, and they should possess the education likewise, which ought to guide them into the pathways of legitimate medicine. It is different with the poor. They have little money to spend on medical advice, and if they choose to seek such aid it is only right and just they should be protected against the attempts made by quacks to wrest away the hard-earned means which might be legitimately enough spent in obtaining qualified medical attendance. The modern quack unites to the characteristics of the ancient impostor the still more objectionable features of high pretensions and colourable imitation of the ways of legitimate medical practice. There is no law, perhaps, which can touch the essence of quackery and destroy the germ of ignorance from which it derives its chief support. But we can ask that the law shall prevent the illegal and fraudulent pretensions of the rogues and vagabonds who haunt our towns and cities, who mulct the young and ignorant of money, and who destroy that which neither time nor money may hereafter replace, namely, the health which timely care and judicious advice might have conserved.—*Glasgow Herald.*

Our Bookshelf

"Reading maketh a full man."—*Bacon.*

INTERNATIONAL HEALTH EXHIBITION HANDBOOKS.

(1.) *Cleansing Streets and Ways in the Metropolis and large Cities.* By William Booth Scott, M.I.C.E., &c. (2.) *Schools of Art: their Origin, History, Work, and Influence.* By John C. L. Sparkes. (3.) *Salt and other Condiments.* By J. J. Manley, M.A. (4.) *Athletics* (Part II.). By the Hon. E. Lyttelton, M.A., and Gerard F. Cobb, M.A. (London: W. Clowes & Sons. 1884.)

This further instalment of "Health Exhibition Handbooks" presents us with a highly varied series of manuals, each written, on the whole, in an attractive style, and each designed to teach the people certain plain truths regarding the influence and bearing on health and happiness alike of the great things and small which aid our physical well-being.

The manual (1) which Mr. Scott has supplied, deals, in the first instant, with a subject of paramount importance in connection with the health of cities. The author writes lucidly of the whole question of cleansing, from the ordinary operations connected with road cleaning to the removal of snow and the utilisation of street and house refuse. The work of which Mr. Scott treats is "of itself very simple in its nature"; it becomes difficult by reason of the "enormous aggregate quantities to be removed and dealt with from overgrown communities." Although Mr. Scott's book might, at first sight, be regarded as dealing with a topic in which the ordinary reader could find little to interest or edify, we can assure our readers that it is by no means a dry or unprofitable manual. On the contrary, it teems with details which should interest the ratepayer bent on seeing "where and how the money goes" in vestry arrangements and in conserving the public ways. Some adequate idea of the immensity of the labour involved in keeping London streets in a clean condition, and in disposing of the refuse which, day by day, has to be removed from the sphere of human habitations, may be gained from the present work. Many useful health hints are given in the course of Mr. Scott's remarks, and, as an example of such hints, we may select what he says regarding the "effect of salt" in dealing with snow and ice. Salt rapidly melts the snow, but it is absolutely necessary that the mixture of salt and snow should be quickly swept away as soon as a liquid mass is formed. Weak macadam roads, Mr. Scott tells us, are seriously affected by this mixture. As regards health, the Medical Officer of St. Pancras has told his vestry that as the liquid brine which results from the mixture of salt and snow "has a temperature about 30 degrees below the temperature of the substances before admixture," serious consequences might ensue to any one who was unfortunate enough to obtain chilled feet by having them immersed therein. He also points out that boots saturated with brine are difficult to dry, and that they again readily become moist. The use of salt is, therefore, prejudicial to health on these grounds, and should be avoided in frosty weather, unless, as is here suggested, the liquid slush be cleared off at once, and the roads coated with sufficient sand to dry them."

Mr. Sparkes (2) as the principal of the National Art Training School at South Kensington, is well qualified to write on the history of Schools of Art. He has produced in the present volume a very useful guide to a knowledge of the rise and influence of these institutions. Mr. Francis Ford has largely aided the author in the preparation of the work.

Mr. Manley's (3) volume on "Salt and other Condiments" deals in chatty and familiar fashion with the history of these addenda to foods. The greater part of his book deals with salt itself; the concluding portion of the volume being devoted to the consideration of mustard, pepper, vinegar, sauce, &c. The author enters at length into the history of the world's salt supplies, and of the rock-salt and brine of the English salt districts. His remarks on the dietetic uses of salt are interesting. He shows what, of course, is now common knowledge, that it is to the salt of the food that we owe the hydrochloric acid of the gastric juice or secretion of the stomach. In the absence of salt, this secretion could not exhibit its normal composition. Possibly, also, as Mr. Manley remarks, salt may be useful in promoting the chemical change of albuminous substances in the body, although he might have added that it is probable salt is not the only mineral in the body which accomplishes this task. The old Dutch laws which condemned a criminal to be fed without salt for a certain time were probably founded on a correct, but barbarous, application of physiological knowledge. In such a case, the criminal died a lingering and loathsome death from emaciation and wasting. Mr. Manley says the annual consumption of salt per head in this country is 16 lb., and of this the ordinary bread-eater consumes 2 oz. or so per week. It is true, as Mr. Manley shows, that there have now and then been found non-believers in the utility of salt; while the fact that certain tribes eat no salt has also been urged against the wide physiological generalisation already alluded to. But Nature contrives that, for health, we must receive with our food, or added to it, the necessary proportion of this mineral; and salt, therefore, remains now, as of old, the most important of all condiments. The chapter on "Salt-Lore" deals with the curious legends which have become associated with this familiar mineral. The sections dealing with mustard, pepper, &c., are eminently readable, and teem with information regarding the sources of the common elements used either to add a zest to the foods we eat, or to induce the good digestion that should wait on the healthy appetite.

The second part of the (4) hand-book on "Athletics" is contributed by Messrs. Lyttelton and Cobb. This manual is divided into two parts, whereof the first deals with "Cricket, Foot-ball, and Lawn-tennis," and the second with "Cycling." Both sections are written with good taste and judgment, and set forth in a very readable fashion, the chief points demanding attention from those who practise the games in question. The book is written also with evident and keen appreciation of the great advantages of exercise and recreation at large; and, while the healthy tone which characterises it will go far to instil confidence in its teachings, the same method of treatment will tend to impress the cautions and advices of the authors duly on the reader's mind. Without making too much, and without saying too little, of exercise and athletics, the authors have succeeded in producing a book which may be read with profit by all to whom recreation is a power for, and factor in, the production of health.

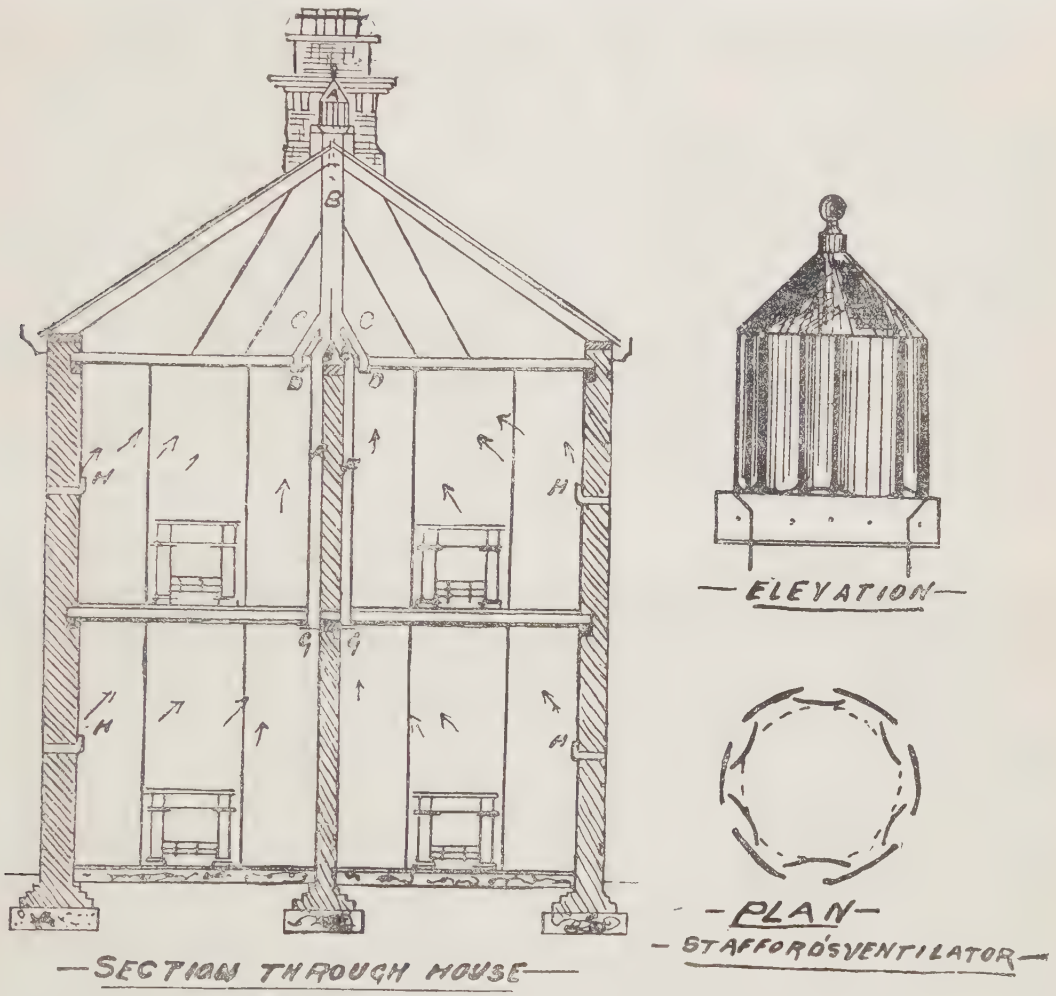
International Health Exhibition. — Eastern Gallery. — Why Burn Gas?—Adopt Chappuis' reflectors. They supersede gas in daytime, and promote health, comfort, and economy. They are now in great use in private houses. For prospectus address two stamps to (H.) Chappuis, patentee and manufacturer, 69, Fleet-street, London.—[Advt.]

Sanitary Appliances, Etc.

VERY CHEAP VENTILATION FOR WORKMEN'S HOUSES, INDUSTRIAL DWELLINGS, &c.

The following description and illustration will prove of interest to all concerned in the improvement of the ventilation and general health-surroundings of the working classes. The fittings are furnished by the Æolus Waterspray and General Ventilating Company, 235, High Holborn, London, W.C.:—A is an automatic exhaust roof ventilator, 10 in. in diameter, with an 8 in. shaft, on Stafford's principle, provisional specification No. 3,126, Oct. 21, 1868, which is as free from down-draught as any automatic ventilator of its class, and possesses the advantage of carrying a shaft nearly as large as the head, the extracting power of every properly-constructed roof ventilator lying in the diameter of the shaft which it is able to carry, and not in the size of the head. B is the 8 in. main shaft, which descends to within 2 ft. of the ceiling of the upper room, and there receives the two 4 in. outlet pipes, C C, which communicate by openings 4 in. in diameter in the angles of the first-floor rooms at the points marked D D. From the junction of C C the main shaft divides into two 4 in. shafts, E E, which penetrate the ceiling in the angle of the first-floor room, but inside the outlet D. This angle is closed in from the ceiling to the floor below by a 7 in. board or a strip of galvanised iron, let into the wall on either side F F, thus forming a continuous shaft from the 4 in. pipe E E, and is connected through the floor and ceiling at point G G with the ground-floor rooms.

This provides for a simple system of outlet, all the shafts of which are *vertical*, or nearly so, and thereby avoids the condensation and tendency to back-draught inevitable with horizontal pipes, or pipes having only a slight rise. H, H, H, H are four inlet brackets, 11″ × 6″ × 2″. These inlets are fixed at the opposite side of the rooms to which the outlets C and G are fixed. The Æolus Waterspray Company do not pretend to supply either labour or materials at cost price, but find that they can afford to sell the above, viz., one 10″ Stafford's Exhaust Roof Ventilator, with 8″ pipe, two 4″ branches, one double 4″ branch, two 10 ft. lengths of ¾″ × 7″ matchboarding or galvanised iron, 4 feet of 8″ galvanised iron pipe, four galvanised iron air-brackets, 11″ × 6″ × 2″, at a fair trade profit, for £3, delivered in London, with full instructions for fixing.



Cheap and Effective Ventilation for Workmen's Dwellings.

THE LONDON PATENT AUTOMATIC DISINFECTOR.

We have made a thorough examination of the "Patent Automatic Disinfector," manufactured by the Company, at 53, Victoria-street, London, E.C., and we have likewise had one of the "Disinfectors" in action under observation for some weeks. The apparatus consists of a metal cylinder, which any plumber can adjust in a few minutes beneath the fittings of any closet. The connections with the inflow-pipes are readily made, and when completed, the pipe of the "disinfector" is made to project slightly into one side of the pan at its upper part. Hence, when the handle of the closet is drawn up, the action forces a quantity of the fluid with which the disinfector is charged into the pan, so that, mingling with the water the pan contains, this latter fluid is kept constantly charged with the disinfectant. That such a body of fluid charged with disinfecting material, must, in

itself, form a powerful and potent means of arresting sewer gas and of checking smell goes without saying. The criticism that a perfect closet needs no such apparatus, is beside the mark, inasmuch as double precaution against sewer-gas is always better than a single precaution, while no closet, however perfect, is intended to disinfect and render harmless the varied matters which may pass through it. Particularly in the case of infectious diseases (*e.g.*, typhoid fever and cholera), where the closet is made the receptacle for these excreta, should the "Disinfector" be found an effective source of disease-prevention and of disease-spreading. Two very important points in connection with the "Disinfector" are, firstly, its simplicity, and its absolute non-liability to get out of order; its action being automatic and the apparatus being brought into play simply by the use of the closet-handle, while one charge of the "Disinfector" lasts, under ordinary circumstances, for a year. The cost of the apparatus is very moderate; and we heartily recommend the use of the "Disinfector" in every household, and in public buildings especially.

LAMPLOUGH'S PYRETIC SALINE.

We have received samples of this well-known preparation, which has had hosts of imitators, but, in our opinion, not a rival, as a mild, palatable, saline aperient, well adapted for use by the most delicate, as well as by the robust. The preparation of Mr. Lamplough contains no injurious ingredients; while it may be safely used without producing any of the nausea and weakness with which the use of many salines is associated. In a recent article in our columns on the treatment of cholera, reference was made to the practice of Dr. Stevens in treating that disease by the administration of saline remedies. It is interesting to observe that Mr. Lamplough was associated with Dr. Stevens in his researches on the efficacy of the saline treatment in cholera, and the Pyretic Saline was prescribed by Dr. Stevens as a convenient method of administering the remedy. We have recommended the Pyretic Saline to various correspondents of Health, from the conviction, supported by the tests of a long experience, that, of all saline aperients, it is the safest and most effective, and, as such, we are glad to know it has met with the approval of the profession at large.

An old gentleman took up a patent-medicine almanac from a pile lying on a druggist's counter, at the same time asking the clerk: "Are these gratuitous?"; to which the matter-of-fact young man replied: "Why, no; them 's almanacs. Can't you read?"

An Exhibition of Lepers.—A showman in California has, it is said, recently entertained the idea of carrying a party of lepers through the various States of the Union, and exhibiting in every town as a rival attraction to menageries and waxworks. It is satisfactory in the interests of good taste as well as of health, that this reprehensible scheme is likely to be quickly checked by the local boards of health, who justly consider that the showman has brought himself into conflict with the interests which it is their duty to protect.

Poisoning of Plants.—It is well known that certain solid and gaseous substances act destructively on plants. In this article we have additions to the literature of the subject. Ammonium thiocyanate (0·25 gramme and upwards per litre) is a powerful poison to germinating as well as to developed plants. Solution of zinc sulphate (0·1 gramme per litre) kills barley and grasses, previously causing brown spots to appear on the leaves; but what the action is remains unknown. Sodium chloride, in small quantities, acts as a manure, but when its concentrated solutions are applied to grasses they die, and their ash contains an abnormal percentage of this compound. In practice, manuring with salt may produce undesirable results if the weather be dry, for then its solutions become concentrated, and, moreover, chlorides of calcium, magnesium, and potassium are formed, and washed away, as well as the phosphates, which are rendered soluble by sodium chloride.—Krauch, in *Bied. Centralbl. f. Agric. Chem.* 1883, 46.

Our Letter : Box

"Conference [maketh] a ready man."—*Bacon.*

NOTICES TO CORRESPONDENTS.

All Communications for the Editorial Department (including specimens of Sanitary Appliances, &c.), to be addressed to "The Editor of Health," 74-76, *Great Queen-street, London, W.C. Those intended for the Publishing Office to be sent to* "The Publisher," *at the same address.*

Contributors are requested to send stamps for the return of the MSS. *in event of non-acceptance. Every care will be taken to ensure the safety of* MSS., *but the* Editor *and* Publishers *cannot hold themselves responsible for accidental loss.*

Correspondents are requested to write on one side of the paper only. The Editor *disclaims responsibility for the opinions expressed by Correspondents.*

LETTERS TO THE EDITOR.

SCARLET FEVER.

Sir,—I have been unable till now to reply to Dr. Mackintosh, as I have only returned from attending the meeting of the International Medical Congress at Copenhagen. I am quite satisfied that the plan I have advocated, if carried out from the first and thoroughly, will prevent the spread of scarlet fever from the sick to the sound. I tested it in practice in many cases, and in none did the disease spread from the patient so treated to any other person in the house. I did so specially among cases where isolation was impossible. Dr. Mackintosh proceeds on the assumption that the poison or zymotic principle which propagates scarlet fever is a germ. This has certainly not yet been proved. From the fact, which is undeniable, that scarlet fever increases in contagiousness as the disease progresses, and, left alone, does not cease to be infectious till skin-peeling has been completed, it may be logically inferred that the zymotic principle ripens, and when immature possesses less virulence. Dr. Mackintosh admits that "disinfectants may render the surrounding medium less favourable for the multiplication and development of these organisms." Rejecting the term *organisms* as at present inapplicable, the sentence concedes all I need. By rendering that soil, the outer skin, unfit to ripen the zymotic principle, this never becomes mature, and hence is not capable of reproducing the disease. This is exactly what daily baths and systematic inunction with an antiseptic ointment can do. Dr. Thuna, of Hamburg, in course of a conversation which I had with him at Copenhagen, told me that while he completely agreed with my opinion as expressed in my paper, he believed that a further advance might be made. By the use of reducing agents, such as sulphur, ichthyol, and resorcin in ointment, he promotes the development of a premature desquamation, and thus hopes to bring the disease to a more speedy termination.

I would much like to know how it is proved that a heat of 250 deg. and no less will certainly destroy the zymotic principle. Have the desquamated scales been so treated, and then a succession of children, unprotected before, been permitted to inhale them? Even were this most unlikely experiment unsuccessful, the proof would merely be negative.

Dr. Mackintosh is surely in error in saying that germs can only be destroyed by heat. Koch's researches have shown that a 1 in 1,000 solution of corrosive sublimate will render all germs innocuous; but this is utterly inapplicable in the case of persons affected with scarlet fever. As Dr. Mackintosh labours in a field where scarlet fever is abundant, may I venture to suggest an honest and unprejudiced trial of the plan I have suggested; and when this has been done I will gladly listen to what he has to say respecting it. To try it fairly, cases should be selected where infection from another and new source can be excluded.—I am, your obedient servant,

W. Allan Jamieson, M.D.,
Extra Physician for Diseases of the Skin,
Edinburgh Royal Infirmary, &c.

SCARLET FEVER AND DISINFECTION.

Sir,—I am somewhat surprised to find Dr. Mackintosh telling us in your issue of Sept. 5 (in a criticism of Dr. Jamieson's papers on "Scarlet Fever,") that the germs of scarlatina can be killed—or "rendered inert," to quote his own words—by no method of disinfection save heat. Dr. Mackintosh must, indeed, be behind the times if he has failed to learn that, according to the researches of Koch, and to those undertaken long ago by the Local Government Board

officials, carbolic acid and corrosive sublimate (to mention only two among many disinfectants) used sufficiently strong will absolutely kill germ-life. Might I ask Dr. Mackintosh how, as Medical Officer of Health for the Chesterfield Combined District, he disinfects a room which has been tenanted by a scarlet fever patient? If heat is the only sure disinfectant, as he contends, he would require to burn down the house to get rid of the germs which are left behind in the room; but as this proceeding would too much resemble the proceeding of the Chinaman, who, to obtain roast pig, burnt his domicile, I apprehend that at Chesterfield there do exist other means of disinfecting apartments. If so, will Dr. Mackintosh let us know how he kills the germs? To "render them inert," as he puts it, is an absolute mistake—germs must be killed; and unless Parkes, G. Wilson, and the whole tribe of sanitarians, including yourself, sir, are wrong, and Dr. Mackintosh right—such a presumption being a little too strong for my acceptance—then one may inform the doctor that burning sulphur, carbolic acid, chlorine vapour, thymocresol, and other disinfectants, *properly used*, are proved capable of killing germ-life effectually and quickly. Were it not so, we should not be able to insure our immunity from a single case of infectious disease. The daily experience of health officers elsewhere, whatever may be the experience at Chesterfield, shows us that heat is by no means the only good disinfectant we possess. That Dr. Mackintosh has evidently much to learn regarding disinfection is clear from his letter to you.—I am, sir, yours, &c.,

M.D.

P.S.—I may add that Dr. Mackintosh speaks in his letter to you of disinfectants rendering the surroundings of germs less favourable for their development. Does he imagine that disinfection consists merely in blowing volatile substances into the air? and has he never heard of disinfectants being applied directly (as Dr. Jamieson advises) to the infective material? How would Dr. Mackintosh disinfect the excreta of typhoid fever or cholera patients? Not, I presume, by volatilising the disinfectant, but by mixing it in strong solution with the infective matter.

MASTICATION "AU PREMIER."

Sir,—The remarks made in your columns on Mr. Gladstone's rules for mastication are valuable and practical; but the results of personal experience are so fallacious, that those who care for their health ought to be warned against being misled by them. Very many years ago I myself had to turn over a new leaf in this respect; and two years ago I effected a wonderful cure in the whole digestive system of a companion in Switzerland, who complained that he could not accompany me further on a small walking tour because he was completely breaking down. He had acquired the habit of eating a great deal too fast, and, consequently, a great deal too much. At every meal for a week or ten days I had persistently to keep him in mind of the injury done to his digestive powers by insufficient mastication. He took it all in good part, and acted on my advice.

During our tour he did his work perfectly well, and two months after our return thanked me for the benefit I had conferred upon him.

Now, in formulating his system, our pre-eminent politician and economist has given the requisite number of masticatations at thirty-two, which number coincides, perhaps intentionally, with the number of teeth, still remaining intact, we will hope, brought into active use. But he gives no clue to the quantity of food taken in at a time, and my experience has led me to place the minimum of masticatations at five times this number for what would be called rather a "large mouthful," weighing half an ounce; and at nearly three times the number for what would be a very moderate-sized mouthful, weighing the quarter of an ounce. I can only conclude, therefore, that his test was made merely with a morsel of bread weighing but the twelfth part of an ounce, for which the thirty-two masticatations would be well sufficient, though not too much. With two such opposite kinds of food as a meat sandwich and a sponge cake, the result is, as nearly as possible, the same. But very few persons seem to be alive to the real need of proper mastication. In the case of such soft substances, also, as farinaceous puddings, fruits, or vegetables, which can easily be swallowed down in an unduly short time, arises very much of the difficulty in teaching young children to masticate their food properly.

If careless people could be brought to see the necessity for proper care in this respect, they would have much more enjoyment in their meals, even when their viands prove somewhat hard and unattractive; and an enormous amount of discomfort and suffering would be saved to those who now are continually complaining of their ill-health and frequent indispositions. Next to pure air and efficient ventilation in their dwelling-rooms, this would be their greatest aid in avoiding the miseries of constant ailing. I much regret that in the new edition of the "Knapsack Handbook" (Stanford), I omitted to call attention to it when treating of drink, bathing, rest, and other matters as bearing on the general invigoration of the system and the avoidance of exhaustion or fatigue.

Very many of the other sex, from mere sentiment or fashion, or ignorant traditional custom, are deluded into destroying their health and gracefulness by distortion of their figures, and too often those of their children, through inhuman modes of dress. But in the manner of taking food there can be no such inducement, unless by any possibility it may be thought "interesting" that they should "look delicate." For boys, the best training, whether for sports or educational success, will be the home education in digestion consequent upon proper mastication and moderation.

Wimpole-street, London, W. William White, F.S.A.

QUERIES AND ANSWERS.

We would direct the attention of our correspondents to the fact that, owing to the necessity for sending Health to press early in the week, answers to queries cannot, as a rule, appear in the succeeding number of the journal. Every effort is made to secure punctuality in the replies, but we must ask the occasional indulgence of our readers, owing to the large amount of correspondence, which requires assortment and reply.

We must also request correspondents who write enclosing stamps for copies of Health, to address their inquiries to the Publisher, *and not to the Editor.*

We beg to announce to our correspondents that, save in exceptional cases, or where addresses of medical men, &c., are desired, we cannot reply to inquiries by letter.]

Correspondents will please note that Queries addressed on Postcards are consigned to our waste-paper basket. If information is worth having, it is at least worth a letter.

GENERAL.

B. A.—Not so easy a task as you appear to think. Consult "Roscoe's Chemistry," and see details therein.

C. A. N.—About twenty or thirty, we think.

Joseph S.—Yes; nitro-glycerine tablets, each containing $\frac{1}{100}$th of a grain, have been given in sea-sickness, angina, &c.

S. B.—The active principle of tea to which you allude is *theine*. It is tonic and stimulant in its action, and has been administered, we believe, for headache.

Junius.—See reply in Health No. 74.

A. G., Cerox, Battley, and J. S.—Declined with thanks.

Tricycle Replies.—Alex. Tait. See reply in No. 75.—P. S. About 130 lb. or 140 lb. The latter weight is perfectly compatible with good, easy running.—J. N. The Crypto-Dynamic gear will be described shortly in our articles, as also "gearing" in general.—Charles Bray. 1. The Imperial Club would certainly suit you.

2. Result of over-exertion merely.—A. Swan. Try Fuller's Earth dusted on the parts. Rest for a day or two.—J. Aitken. No: many thanks.—P. J. N. Seldom seen now in the market. Your only chance is a second-hand dealer.

Onyx.—The Science and Art examinations take place in May each year. Enrol yourself in your local centre, or write for instructions to South Kensington.

John C.—Dr. Wilson's "Manual of Health" (in the press), or Dr. Corfield's "Health Primer" (Longmans) would suit you.

A. X. L.—Mr. Flack, 74, Great Queen-street, W.C., will probably be able to aid you. Write to him.

G. C.—1. We think Parker's "Zootomy," published by Macmillan & Co. (7s. 6d.), would suit you. 2. There is an Encyclopædic Dictionary, published by Cassell, which might suit you. You should examine it, and see if it would suit your purpose. 3. Packard's "Insects" might suit your purpose.

SANITARY.

J. Burton.—See article in Health No. 75 under "Healthy Houses." The sink there described is a most excellent make.

B. G.—The clause is usually interpreted as you say.

Intro.—The district is not malarious as far as we have heard. Write to the Medical Officer of Health.

Cautious.—No; you cannot be compelled to execute such repairs. That is the landlord's business.

G. O. P.—Try the effect of fitting an "automatic disinfector" (see our advertising pages) to the closet.

H. C. H.—No; we do not think any law would compel the builder to make good the damage. Our advice to you is to call in a respectable builder, and see what he would advise. Probably you will require to replace the ground-flooring, which has become affected by damp. If no air-space has been left or allowed for, the cause of your troubles is easily explained in the damp theory.

Catford.—Why not call on the secretary or manager of the Gas Company? It is certainly not to the interest of the Company to refuse to give you a greater supply of gas; such a request, on the contrary, represents a gain to them. A personal call seems the only solution of your difficulty. Let us hear how you succeed, as the question is an interesting one.

Victim.—As the overcharges were paid in consequence of a mistake of law, and not of fact, it is very doubtful whether you can recover. In any case, you can only recover the six years' overcharges immediately preceding the action.

MEDICAL.

G. C. W.—1. The confinement may be somewhat against you, but there is no reason why you should give up your trade. 2. Try what a month's complete change and rest will do for you. Go to a bracing seaside place. 3. No; you may be cured in a short time. 4. The head-symptoms probably only result from your close confinement and general ill-health. Try a change by all means.

Cranky.—1. "Paralysis" may or may not be accompanied by brain-disease. 2. By "consumption of the brain" we presume is meant the development in the brain of "tubercular" matter, similar to that which may occur in the lungs and other organs. 3. Yes; the disease so much made of by quacks, and grossly exaggerated by them in every way. 4. We maintain it is because it is unnatural. General nervous symptoms are the results of *excess* in the practice or habit.

Toosey.—Somewhere in the south or south-west for preference. Clapham is warm enough, also Brixton; but Kew and the Thames district might suit, if not too damp.

Mother.—There is need for rest in the case you name. The visit to the sea would do good, if the locality is suitable otherwise, and the duties not too hard. We should advise that fifteen drops *Fer Bravais* should be taken thrice daily in water, between meals. Fruits and vegetables should also be made a part of the ordinary dietary by way of correcting constipation. If not bettered, write again.

Jersey.—Your friend's opinions are (to say the least) highly ridiculous. We should advise you to take Morson's Pepsine for a time with your food, and to try a Turkish bath twice weekly. Let us hear how you are thereafter.

H. A. R.—"Herpes" is not at all an uncommon ailment of the skin. It will disappear through your avoiding stimulating foods and drinks, and by your taking a little Lamplough's Pyretic Saline as a cooling aperient. Use Hazeline as a lotion to the parts affected.

Jacobus.—Don't be alarmed. The secretion is not what you think it to be. You need no treatment whatever beyond avoiding constipation, and taking, for a time, a teaspoonful of Fellows's Syrup of the Hypophosphites, in a wineglass of water, thrice daily, an hour before food. Give up all other tonics.

M. S. Y.—No; the use of coca is in no way injurious. It is allied to tea and coffee in its nature, but is more decidedly a stimulant and restorative. It may be taken with safety.

Roy.—See and follow advice to "G. H. Gawler" in Health No. 74. The tonic need be taken for a short time only. Don't be alarmed or anxious. By attention to ordinary health rules, you will get quite well. For the "blackheads," press them out of the skin, and then sponge the parts with Eau de Cologne or with Toilet Vinegar. Avoid chills.

Student.—We scarcely understand why you make so much of the "heaving." We can only repeat that it is not in the least likely, so far as breathing carbonic acid is concerned, that a person conversing to another would cause the latter to become stupefied with the CO_2 exhaled from the lungs of the speaker. The law of diffusion would prevent such a result. The symptoms of poisoning by carbonic acid gas simply depend on the amount inhaled. Go into the gallery of a crowded theatre or church, and experience the stifling close feelings for yourself.

Tropical.—Nothing to be anxious about. Try the effect of applying a little carbolated Vaseline, and of taking a cooling aperient (*e.g.*, Lamplough's Saline). Probably, if these means fail, the application of a little citrine ointment may cure you.

N. O. P.—You are making far too much of the past. What you name as a symptom is perfectly usual in healthy persons. Simply read and follow advice given to "G. H. Gawler," in Health No. 74, and you will get quite well. The tonic there named will do you great good.

Grimond.—Not at all a dangerous symptom, *i.e.*, in the light in which you regard it. Simply bathe with warm water, and avoid cold. Rest is essential.

B. G. Y.—See advice to "Jacobus" above.

A. Preston.—1. Take the medicine thrice daily, after meals. 2. For, say, a fortnight.

An Anxious Mother.—We have never heard of the person you mention. You should secure the best possible advice for the patient, as epilepsy requires not merely good treatment, but continuous watching. We can send you address of a reliable physician, if desired, on receipt of stamped addressed envelope.

Forty-Six.—See to the ventilation of your workshop, so as to limit the possible harm dust may do. Take for a time a dessert-spoonful of cod-liver oil or of cod oil emulsion after meals, and try the effect of inhaling the vapour of a pint of hot water to which ten drops tincture of iodine have been added. Inhale for five or ten minutes morning and night. Try cold sponging each morning to your chest, if it agrees with you.

H. Robson.—Try the effect of taking fifteen drops *Fer Bravais*, thrice daily in water, between meals. Don't tamper with medicines. For the hair, try rubbing into the roots a little macassar oil each morning. If not bettered write again.

Avon.—Drink a glass of cold water on going to bed at night, and on rising in the morning as well. This may suffice to cure your constipation, and eat fruits and vegetables with your meals. See to your teeth, and take a pill containing two grains sulphate of quinine an hour before dinner each day for a time. Write again if not bettered.

Dum Spiro Spero.—We have no faith in the remedies you enclose. Drugs, in a case like yours, are of little avail. If you will be guided by us, you will give up tea, coffee, and stimulants. You must have absolute rest from the exercise you name for at least two months or so, and during that time use cold sponging each morning, keep early hours, have moderate open air exercise, and take a teaspoonful of Fellows' Syrup of the Hypophosphites daily in each *alternate* week, in a wineglass of water, an hour before meals. The absolute rest above indicated is your sheet-anchor; we have seen such cases as yours recover completely by attention to these simple details.

Anti-quack.—What you name is not at all a rare complaint, and should cause you no uneasiness whatever. Don't be alarmed. Merely see to your digestion, and, above all, avoid constipation. It is probable that the use of an injection of Condy's Fluid and water (a few drops of Condy, added to a tumbler of tepid water should be used), used night and morning, will do you good. The tonic pills above-recommended to "Avon" would also aid you. Glad to advise again, if necessary.

Alice Ward.—Very sorry to hear of the patient's ailment. At his age, you must be very careful. We could not advise anything to be done, save that absolute rest and quiet should be attended to. The state of the digestion is also important; all heavy foods (and suppers especially) are to be avoided. Active exercise should be interdicted. The treatment he received was all that could be desired. Rest is both the preventive and cure. Glad to be of any further service to you.

P. J. S. M.—Would you kindly state again specifically, what you complain of? Your letter is clear as to details of living, but you name no symptoms which cause you annoyance. We do not preserve our correspondence. Glad to assist you again, when we hear of your ailment definitely.

Inquisitive.—1. No; it can only act as a slight laxative, and in health you should not require that or any other medicine. 2. Any alkali is injurious if taken for a length of time, or in too large doses. 3. The use of the instrument certainly improves the voice, and in this much that is claimed for it, we agree; but we are sceptical of its being able to effect permanent improvement. Your best plan is to examine and try it for yourself. 4. A "genuine electric belt," any ordinary mind would be able to translate as meaning one which really produces electricity, which is more than can be said for most of the belts advertised and sold as "electric." 5. Used for headaches chiefly. [Not quite so many queries in one letter again, please.]

Pop.—1. If you mean, "Does the brush produce electrical currents?" we reply, "No." Aaronson's brushes or those of Miss McMullin really produce such currents. 2. See reply No. 3, given to "Inquisitive" above.

A. Nisbet.—See that you wash the parts morning and night with Terebene Soap and tepid water, and use Hazeline for a time as a lotion thereto. Thereafter use plain Vaseline as an application.

J. E. E.—It is difficult to answer your question or to advise you, inasmuch as, we suspect, what you regard as an ailment is, in

[*Continued on page* 384.

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GALVANISM v. NERVOUS EXHAUSTION, *Testimonial from India*, received July 29, 1884.

"Agra, India.

"Dear Sir, — Your Galvanic Bands have worked wonders with me, and of their great efficacy no doubt can exist. I am very grateful to you, and am, yours faithfully,
(Major) "F. W. CHATTERTON,
"Mr. J. L. Pulvermacher." Magistrate.

GALVANISM v. LIVER COMPLAINT and INDIGESTION.

"Twickenham, S.W., August 26, 1884.

"Dear Sir,—I am well satisfied with your Galvanic Belt for my special complaint, Liver and Indigestion; it is a complete remedy. My brother in Bombay also finds great relief from the Pulvermacher Belt I sent him.—I am, yours truly, "C. G.
"Mr. J. L. Pulvermacher."

N.B.—Full name and address on application.

GALVANISM v. NEURALGIA.

"Croft House, Stanstead, Essex, Aug. 25, 1884.

"Dear Sir,—I am very thankful to say I have not had any return of Neuralgia since using your Galvanic Belt, and I am sending for another for a friend, who has heard that I have been cured.—I am yours thankfully,
"Mr. J. L. Pulvermacher." "GEORGE DOVER.

GALVANISM v. CONSTIPATION and PILES.

"Henley-in-Arden, Birmingham, Aug. 12, 1884.

"Dear Sir,—I have worn your Electric Belt for Piles and Indigestion. The piles I have been subject to for about eight years, and I am now happy to say the Belt has nearly cured me, although I have only worn it for about six weeks; it has also cured me of Constipation from which I suffered very much.—I am, yours sincerely, "ALFRED GROOM.
"Mr. J. L. Pulvermacher."

DR. C. HANDFIELD JONES, F.R.C.P., F.R.S., Physician to St. Mary's Hospital, says: "I am satisfied Mr. Pulvermacher is an honest and earnest labourer in the field of science, and I think he deserves to meet with every encouragement from the profession and scientific men."

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reality, only natural in most healthy persons. Our advice to you is, not to allow your mind to dwell on your troubles, which are largely of your mind alone. Read and follow the advice given to "G. H. Gawler," in Health No. 74, and give up tampering with all other medicines, save that there recommended. You will be worse than foolish, if you think your past has anything to do with your present state. Only quacks will tell you so.

A Well-wisher to "Health."—You should give the lime powders, recommended to "Albion Hyde" in Health No. 73, a trial. Avoid chills, and let your food be simple and plain. A Turkish bath occasionally might assist you. Glad to be of any further service.

Ophthalmos.—It is possible that the use of shaded glasses would do you good. Avoid any nightwork for a time, and see especially to the ventilation of your rooms. Try the effect of using a little of a lotion made by adding one grain sulphate of zinc to the ounce of rose water. Dilute part of this with half of its bulk of tepid water, and use as a lotion night and morning.

Alpha.—Depends largely on individual constitution, state of health, and other details. Probably about once a week.

Arthur Forge.—You are very nervous, and very foolish besides. Don't be either morbid or alarmed. What you name is quite common in healthy persons. You have no disease, and therefore require no drugs. Take plenty of outdoor exercise, use cold sponging each morning, avoid fluids late at night, and, above all, occupy your mind with healthy thoughts.

Victor.—Much of what is said above to "Arthur Forge" applies exactly to your case. Follow advice given to him. As regards the flushing of your face, that is a symptom of indigestion. Rest after your food, and take a little Morson's Pepsine with your meals. Above all, don't be morbid. You suffer from no disease. The pamphlet you send is that of a notorious London quack.

Anchor.—See and follow advice given to "Arthur Forge" above.

Irksome.—We should say such medicines as chlorodyne, quinine, sal volatile, the various coated pills (as made and described by Messrs. Kirby & Co., of London) along with hazeline, as a good astringent, should suffice. Any druggist will fit you out with a small medicine chest containing the above and other drugs. As regards drinks, we should say the Montserrat or Feltoe's Lime Juice would be your safest and most refreshing beverage.

K. S. P.—See advice to "G. H. Gawler," in Health No. 74.

Semaj.—You should now give Rowlands' Macassar Oil a trial. Rub this well into the roots morning and night. It is probable you require some constitutional treatment as well. Try the effect of taking for a time the tonic recommended to "Dum Spiro Spero," above. This may do good through its effect on the general system.

H. C.—Probably the sweet foods produce digestive disturbance, and hence your ailment. Simply avoid such foods—there is no other cure. The same result follows eating shellfish in certain persons.

Jorwerth.—No need either to be alarmed or to despair. Simply read and follow faithfully advice given to "G. H. Gawler" in Health No. 74. By attention thereto, you will get quite well.

William Thirsk.—No; no harm whatever. The coca leaf resembles tea somewhat in its action, although more potent as a preventer of waste. (See par. advt. in Health.)

Naomi.—See to your teeth. Brush them night and morning with camphorated chalk. Take a little Æsculap Water in the mornings, for a time, by way of correcting your digestive symptoms. After that, let your food be very light for a time, and take a little Morson's Pepsine with your meals. Avoid suppers.

Toofnam.—What you mention is often seen in healthy persons. It is of no consequence whatever. Simply avoid fluids at night, and take moderate outdoor exercise.

November.—[Many thanks for your kind note. Your suggestion regarding the bills will be attended to. If you will send us your private address, we should forward a weekly supply to you direct.] We referred to the strong probability that you were quite free from any ailment of the kind you named. We think the opinions which pronounced you free from ailment were the correct ones. We do not see in the least that you need fear to take the step you contemplate. There is no evidence that you are in any way unfit therefor. Take for a time the mixture recommended, and write again if necessary.

A Nervous Sufferer.—(You should note that all letters such as yours should be addressed to the editor, not publishers.) See and follow advice to "G. H. Gawler" in Health No. 74. Don't be morbid; and, above all, don't consult any more quacks. One of them has evidently frightened you with the usual lies of his kind.

Martyr.—See Health No. 63 for article entitled "A Valuable Remedy," and follow what is said there about a trial of the Cascara Bark preparations for the cure of constipation. It is this latter affection which is at the root of your trouble. Let your food be light, and try cold sponging each morning, if you have sufficient reaction. Write again if not bettered.

G. W. B.—Try the effect of adding a little of a saturated solution of boracic acid to the water used for washing the hands. Bathe the hands in this three or four times a day, and also try the constitutional effect of a little iron (*Fer Bravais*, fifteen drops thrice daily). The feet may be similarly treated. Socks to be daily changed. [We are bearing your last communication and appliance in mind.]

Adjure.—Try the effect of taking the *Fer Bravais*, as advised to "G. W. B." above. Inhale the vapour arising from a pint of hot water, to which ten drops of tincture of iodine have been added. Repeat this (for five minutes at a time) thrice daily. Let us hear how you are thereafter. A thorough change of air would do you good.

Ice Cream.—There is no necessity to adopt the somewhat dangerous advice you received. Avoid fluids late at night, and suppers also; take more open-air exercise, have a cold sponge bath each morning, and let your thoughts be cheerful and healthy. Don't follow the advice you had. It is in every way bad, and is entirely unnecessary.

Fred Harrey.—Don't think for a moment of paying two guineas a week for any such treatment; and keep your mind cheerful and easy. Read and follow the advice given to "G. H. Gawler," in Health No. 74, and let us hear how you are after a fair trial of it. We never give addresses of medical men, unless a stamped directed envelope is sent us. It appears to us you have simply been made highly nervous. There is no need for anxiety. Wear the bandage as you were told.

Gladys.—We hardly understand your query. Beer, even in moderation, would not suit all cases. A gouty subject, for example, requires to abstain entirely from beer, and there are others to whom beer is practically forbidden. An ordinary healthy person may take beer daily without fear of evil results. The only true test is individual experience.

Neurology.—Thanks for your note. Glad our advice had such a good result.

T. R. B.—You cannot "make" preparations of iron and quinine. Your best plan is to purchase the citrate of iron and quinine, in which the two drugs are combined, of which the dose varies from five to ten grains. It contains sixteen per cent. of quinine, and is soluble in water. A good tonic is composed of citrate of iron and quinine, a drachm and a half, carbonate of ammonia, two drachms, tincture of orange-peel, two ounces, and water to make up six ounces. A tablespoonful to be taken before meals thrice daily.

Tubey.—We think you would benefit from taking fifteen drops *Fer Bravais* in water, thrice daily between your meals. Apply to the irritated parts a lotion composed of bicarbonate of soda, one drachm; glycerine, one and a-half ounces. Wash the parts each morning and night with Pixene Soap. Write again if not bettered.

H. T. W.—1. Rest after food, light dietary, and Morson's Pepsine, to be taken with the food as directed on the bottle. 2. The eye troubles will disappear when you correct the digestive ailment. The mixture recommended to "Anxious Enquirer," Health No. 73, might be tried as a cure for your digestive troubles.

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IMPORTANT TO INVALIDS.

Owing to the decease of Mr. J. L. Pulvermacher, Medical Galvanist, of 194, Regent-street, London, W., Mr. W. G. JOHNSON, who for 14 years was the Consulting Electrician and had the sole-management of the business, desires to intimate to patients desirous of adopting ELECTRICAL TREATMENT that he may now be CONSULTED DAILY at the Rooms of the

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HEALTH

EDITED BY

DR. ANDREW WILSON, F.R.S.E., &c.

LONDON: *FRIDAY, SEPT.* 26, 1884.

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Notes by the Way

"Health is the foundation of all our physical happiness."—*Herder.*

The winter campaign devoted to instruction in Health-Science in London promises to be a full and complete one. Announcements are made of popular classes for instruction in Physiology and Hygiene at the Polytechnic, Regent-street—an institution admirably managed, and presenting a very full programme of subjects for study. The Birkbeck Institution, in Chancery-lane, is also to the front, as usual, with Hygiene as a subject of instruction. The Charterhouse School of Science and Art—of which an account will be found in another page—makes health-science a feature of its educational programme; and we have received prospectuses of science lectures (including instruction in Physiology and Health) to be delivered at the Hackney Institution, Morley Hall, Mare-street, E., and at the Highbury Institute, Canonbury-road, N., by Mr. Lillie Mackay. As most, if not all, of the institutions above-mentioned give their lectures in the evenings, the classes are highly suitable for those who may be engaged in business during the day. It may be added that at these classes preparation can be undergone for the Science and Art Examinations in Physiology and Health held by the Government in May of each year.

✣ ✣ ✣

Dr. Andrew Wilson will lecture at the Royal Victoria Coffee Hall, Waterloo-road, London, S.E., on the evening of Tuesday, September 30, at 8.30 p.m., on "Our Bones, and how they are made." The Victoria Coffee Hall is the old Vic' Theatre, famous for its transpontine dramas. In the hands of an energetic committee of ladies and gentlemen the Hall is now given over to the rational, cheap, and healthy amusement of the people, under temperance auspices. The programme presented each week, while of a refined character as compared with the entertainments usually offered to the masses, endeavours to combine instruction with music and exhibitions in which the large audience is likely to feel interested. Time was when the idea of even a very popular science lecture in the Waterloo Bridge-road would have been voted a Quixotic undertaking. To-day the lecture is a success, always provided the speaker makes his facts plain to his hearers, and illustrates his remarks fully by aid of limelight pictures. It is worth while to pay a visit to the "Vic'" under its new auspices, if only to see what is being done in the way of providing rational amusement for the masses.

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We think it right to state that the recent paper published in Health, and entitled "A few Simple Dishes," was written by Miss Agnes Kelman, the name of the authoress having been inadvertently omitted. The dish spoken of in the lecture as "Soocus" should have been named "Sooens."

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An article likely to cause some little stir in the bicycling world appears in last week's *Lancet*. This paper, written by Dr. Strahan, of the County Asylum, Northampton, contends that alarming evils are likely to result from the persistence with which bicycling is followed as an amusement, by growing boys especially. Dr. Strahan maintains that injurious pressure is exerted by the bicycle saddle, and that as the whole weight of the body is thrown upon the parts resting on the saddle, very serious effects are apt to arise from the pressure thus induced. He instances, as a result of the present craze for bicycling, for long distance tours, and for racing matches, the "shakiness" which may be seen in any one attempting to play a game of billiards after a twenty miles' ride. After ordinary horse-exercise, of course, it might be maintained the same nervous effects are seen, yet no one regards riding as an injurious exercise on this account. Dr. Strahan, evidently anticipating this latter objection, proceeds to show that horse-riding, carried to excess, as he contends bicycling is carried, results in the same nervous deterioration and physical degeneracy.

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He instances cases of such degeneracy in the Tartars, and in the Southern horse-riding Indians; and argues that if such effects are seen after horse exercise, they must be represented with treble force in the bicycle and its narrow saddle. The jolting is also made a subject of remark by Dr. Strahan, and he takes care to emphasise his remark that the evils he describes are particularly seen in growing boys. That he includes tricycling in the sweeping condemnation in which he indulges, is evident from his remark that the bicycle saddle "is now almost universally used for the tricycle too." It seems to us that Dr. Strahan has tried to prove just a little too much. He has overstated his case, in our opinion, and has simply weakened what, probably, it may be taken for granted, would otherwise have been a fair and just contention. That excessive bicycling, like over-indulgence in any other form of exercise, is likely to produce evil results, no one would dream of denying. That the results of excessive exercise will tell most heavily on growing bodies, is also an incontrovertible argument. But that the evils Dr. Strahan describes are at all commonly seen, or widely spread, is quite another matter, and one, to establish which, he will require to submit an amount of proof which is not afforded by the mere unsupported assertions of his article in the *Lancet*.

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Dr. Strahan, in this respect, is an alarmist, who overshoots his mark. We are not aware that the proportion of bicyclists who seek medical relief for the complaints he describes is higher than among the non-bicycling public. In common fairness to the bicycle, Dr. Strahan should have supplied us with statistics. He has formulated a theory, ingenious enough no doubt; what the bicycling world will demand is proof of the correctness of the theory in question. Against Dr. Strahan's opinions is to be placed the fact that tens of thousands of our boys—to quote his own word—use the bicycle daily, and throughout all their

exercises show no symptoms of the ailments described. We shall hope to hear more about this article of Dr. Strahan's in the interest alike of medicine and cycling. As the matter stands, it leaves the healthy experience of thousands of cyclists against Dr. Strahan's apparently unsupported theory.

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"WHEN will the nation be free from preventible disease?" is a question which is daily asked by sanitarians, but, rarely, if ever, satisfactorily answered. What happened recently at Kidderminster is simply a fresh illustration of an old, old story in sanitation; but the recital is worth dwelling upon by way of warning and edification. Typhoid fever, it seems, has been prevalent in the town just mentioned; and how lamentably common sense (as well as common science) falls short of securing us against illness and death, may be gathered from the announcement that the chief part of the Kidderminster water-supply was actually found to be derived under circumstances in which it was rendered liable to contamination from the sewage-pumping works of the town! The result of drinking diluted sewage was seen in the typhoid epidemic; and the story thus told us may be paralleled over and over again by the history of almost every typhoid epidemic we know.

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PARIS is again coming to the front as a centre of typhoid fever. Truly nature revenges herself in a very effective manner for the violation of the laws through the observance of which health is secured. So long as Parisians neglect the first principles of sanitation, so long will they pay dearly for their negligence. Any one who is familiar with Paris hotels must have become painfully aware of the utter want of anything like common attention to ordinary drainage and trapping arrangements which prevails in these caravanserais. Such "familiarity breeds contempt"—for French ideas of comfort and health, at least.

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WE hear that a certain Herr Hartmann, of Berlin, has presented to the "Society for Health Technics" of Frankfort-on-the-Maine, a report on the London International Health Exhibition. It may interest the Exhibition authorities to know that Herr Hartmann thinks that the Exhibition, from a scientific point of view, is simply pitiful to witness. "It is anything rather than a Health Exhibition,"—such is the Hartmann verdict. No doubt, there is a good deal of the popular entertainment order about the great Kensington show. But in this country, Herr Hartmann should be made to understand, we do not take life quite so seriously as does the metaphysical German nation. If a general interest in health matters may be expedited and encouraged even through the aid of music, electric lighting, and other displays, so much the better, we say, both for the progress of health-science and for the innocent amusement and recreation of the people.

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SOME time ago the origin of the dark-coloured races of mankind was discussed in these pages (see HEALTH, No. 53, p. 4). It may prove interesting to note that Dr. Alcock ascribes the dark colour of the skin in negroes and others to the necessity which would appear to exist in the tropics for an absorbing surface for heat-rays. Dark colour, in other words, is placed in front of the nervous and sensitive parts of the skin because there is need to lessen the effect of the heat-rays. As has been remarked, the action thus suggested is simply that seen when a piece of smoked glass is held between the sun and the eye.

Original Essays

"Life is not to live, but to be well."—*Martial.*

ON FASTING AS RELATED TO HEALTH.

BY M.D.

THE Editor of HEALTH has handed to me a series of interesting memoranda sent him by a member of the Jewish persuasion, relating to the fasting habits which form such a prominent feature in the religious rites of the ancient people. He has requested me to furnish the readers of HEALTH with an opinion on the general question of fasting as related to health, taking our Jewish friend's information as a text for the discussion. This request I gladly accede to, because, apart altogether from the deep interest we may naturally feel in the religious rite, the question is one of popular interest, and one, moreover, which should be studied by all interested in health-laws and sanitary practices.

It will be well that I should allow our Jewish friend and correspondent to speak for himself in the first instance. He writes so lucidly, and is evidently so deeply interested in the matter, that his words should be read as he has penned them. His chief point, one may add, is the possibility "of compressing a couple of days' rations into the advance meal" of which he partakes prior to his fast. He adds that, even if he could be invested with a bilious attack which could make him loathe food for twenty-four hours, he would feel enabled the better to tide over the period of fasting prescribed by his religious observances.

From the first communication to the Editor of HEALTH I select the following passages:—

"The annual great Fast Day—the Day of Atonement—when every year Jews, no matter how unorthodox, for the space of twenty-four hours are rigid abstainers from food or drink of any kind, would necessarily be a fair subject for medical comment and advice. The value of such an article as I should like to see in HEALTH, would consist in the opinions expressed as to the description and quantity of food necessary to make and to break the fast. Jews generally tide over the time on beef or poultry, and pastry; beer or wine, and a cup of tea or coffee. The breaking of the fast on the following evening, is a delicate matter for some digestions. Personally, I start on a cup of coffee, and a piece of fish fried in oil, and take a temperate quantity only—indeed, one's sharp hunger has disappeared hours before the longed-for time of release, and I mostly suffer all the evening with the pangs of indigestion. On the following day I always feel clearer and better for the enforced abstinence. Medical opinion seems to differ, as far as I can learn, as to the good or bad results likely to accrue from fasting. Jewish longevity does not go to support the latter view."

So far our friend's requirements are clearly expressed. In reply to the Editor's request for details, the following interesting particulars were sent him:—

"The Jews have seven or eight fasts, of more or less importance, in the course of one year. One, the Day of Atonement, the tenth day of the Hebrew month *Tishri* (which would, speaking roughly, fall in September or October of the Christian year), is of supreme importance,

SCOTT'S MIDLOTHIAN OAT-FLOUR.—There is no preparation which can be assimilated with greater facility than such a flour as this. Those who suffer from indigestion might substitute for their ordinary breakfast materials this flour, prepared according to the recipe given by Messrs. Scott and printed on the tins.—ED HEALTH.—[ADVT.]

and is observed as an occasion for rigidly abstaining from any description of food or drink by every adult, male or female, who lays the smallest claim to Judaism as a religion. The two next in importance, celebrated by a very much smaller proportion of Jews, are the Fast of *Tamuz* and the Fast of *Ab*, which occur in those respective months that comprehend part of June, July, and August. The Day of Atonement is, according to Leviticus xxiii., 27—36, ordained by the Supreme as a reparation for sins committed in the preceding twelve months. The fasts of Tamuz and Ab represent the national grief at the double destruction of Jerusalem and the Temples of Nebuchadnezzar and Titus respectively. The remaining opportunities for abstinence, being almost optional, have relatively few devotees; but among the ultra-orthodox of foreign Jews—in Poland and parts of the Holy Land particularly—every Monday and Thursday throughout the year are considered as not too often to fast in recognition of some personal or general iniquity, fancied or real. With this amount of training and practice, it strikes one that on the Fast of the Day of Atonement our Polish friend would, metaphorically, be equal to knocking his English co-religionist into 'a cocked hat.'

"So much for the fast. Now for the fasting. Briefly the facts are as follow:—Every male or female over thirteen years of age must fast the full time, twenty-four hours, from sunset to sunset. I, perhaps, fairly represent the mass, and my experience is something in this way. At four o'clock in the afternoon, of the eve of the Day of Atonement, I take the meal that is to tide me over the long interval. My age is thirty, height 5 ft. 8 in., weight close upon 13 stone. I have a somewhat sluggish liver, and suffer occasionally from indigestion and bile, but not sufficiently to make me cautious in my diet. A couple of plates of good soup, a fair helping of roast beef, potatoes, and cauliflower, a couple of plates of bread-and-butter pudding, or apple turnover, and some fruit, comprise the solids; a pint of light ale, a nip of 'neat' brandy, and a cup of coffee represent the fluids. At half-past five I go to synagogue, where the crowding, the heat, and the monotony of the readers' chaunting, on the top of a full meal either send me to sleep or give me a headache. At half-past nine, home again, very thirsty. Bed, and up again at eight next morning. I miss my accustomed cup of coffee, and my stomach evidently does so too, as—a most unusual thing under ordinary conditions—it omits to fulfil its functions till the evening, after the (literally) breakfast. I go to synagogue at nine, and there remain till twenty minutes past six the same evening. Prayers, diversified by a short lecture, are chaunted the whole of the time. At eleven a.m. I feel hungry; at twelve I acquire a headache; at one the hunger goes, and leaves a sinking feeling in the stomach. Excepting the headache, which is of the description appropriately known as 'splitting,' I feel in excellent spirits. At four, I am hungry and thirsty both, but I somewhat relieve the headache by inhaling some borrowed ammonia.

"From that time to the conclusion, the hunger and thirst gradually depart, and when the congregation disperse at 6.30 p.m., I feel equal to protracting the occasion till the next day. I first take a cup of hot coffee, and very gratefully do I imbibe it; then succeeds a piece of fried fish—sole or plaice—with some pickled anchovies; then, perhaps, a second helping of fish, and certainly several repetitions of the coffee. I take nothing as a rule after that till the following morning. On some occasions I have suffered from an attack of indigestion in the night; but, on those occasions, I am afraid I did not start feeding leisurely enough. But I always feel lighter, freer, and clearer on the following day, and my headache *always* disappears five minutes after taking my first mouthful.

"I have seen people of over ninety years of age fast without a murmur; indeed, an old gentleman at the rear of my seat in synagogue was ninety-one last birthday, and he went through the fast better than I did. I never knew any one injured by fasting—at least it was never so acknowledged. Headaches seem to be divided fairly among the fasters. Growing boys suffer most acutely. Women seem to like it. Elderly men seem the next least affected. I do *not* like it; and I carry it out, not so much from religious conviction as because such has been my religious education, and because I respect the occasion as a national festival of my race."

Nothing can well be clearer than our friend's remarks. The medical aspects of fasting become extremely interesting, especially when we conjoin them with the mental or psychological phases they are intended to promote.

(To be concluded.)

Pownceby's Pure Wines and Brandies, as analysed, and especially selected to suit medicinal purposes, may be obtained in small quantities at wholesale prices. Free delivery within fifty miles. Circular and price current by post from Pownceby & Co., Wine and Brandy Importers, 183, Oxford-street London, W.—[Advt.]

SLEEP-WALKING AND RELATED CONDITIONS OF MIND.

By Dr. Andrew Wilson.

V.

Passing now to consider the state to which the name of *Mesmerism* has been given, we discover that in many interesting points this state resembles that of the sleep-walker. To the series of nervous acts collectively named "Mesmerism"—a term derived from Mesmer, the French quack, who was among the first to employ the condition in the attempted cure of disease—the terms *hypnotism* and *artificial somnambulism* have also been applied. Dr. Tuke* fully recognises the high importance of our being able to form some conception of the mental state of the "mesmerised" or "hypnotised" subject, in order that we may thereby be enabled to know something of the nature of related actions of the brain. There exists the greater need that such an inquiry should be undertaken, from the fact that the phenomena of mesmerism have long formed part of the stock-in-trade of conjurers and others, and have, in this association, been frequently relegated to the domain of the quack, while their true nature has, of course, been much misunderstood. In proof of these assertions one may only point to the common and conflicting statements that "there is nothing in mesmerism," that "it is beyond all human power of explanation." Extremes meet here, as elsewhere; and in showing that the condition of the mesmerised is simply one closely related to sleep-walking and other states of mind, the physiologist is not merely dispelling a lamentable ignorance of common nervous states, but is rescuing an interesting topic from the domain of the ignorant and prejudiced.

With the appearance and acts of the "mesmerised," few readers can be unfamiliar. Out of, say, a dozen subjects selected by the operator, a few succumb to the mystic "passes" through which the mesmeric condition is believed to be produced. These subjects then seem to lose all idea of their own personality and identity, and give themselves up to the various suggestions of the operator. One without any power of song, is told he is Sims Reeves, and

* "Sleep-Walking and Hypnotism," by Dr. Tuke. (London: J. & A. Churchill, 1884.)

thereon proceeds to warble forth what he imagines is a beautiful tenor solo. Another drinks castor-oil on being told it is port wine or champagne. A third imagines, at the behest of the operator, that he is addressing the House of Commons, and a fourth may be made to remain immovable and fixed at the will of the operator. With such an exhibition most of us are well acquainted. Often termed "electro-biology"—a high-sounding title for which there is not the slightest justification—the condition of "mesmerism" is believed to be associated with some wondrous and occult power possessed by the operator. Hence, as in many other cases of popular inquiry into scientific subjects, the whole topic is supposed by the public to be vastly beyond the reach of explanation. Such an opinion evidently, however, fails to take into account that, even were this latter assertion correct, the operator of the entertainment halls must, at least, know less of the nature of the conditions he produces than the man of science who makes the nervous system and its operation a special study. While it is too frequently forgotten that, so far from being ignorant of the nature of "mesmerism," we. in reality can now approach tolerably near to its explanation. In this, as in other matters of science, much light is thrown upon special fields of inquiry by the researches undertaken in other departments.

The day-dream or reverie, as the most familiar form of what is generally named *abstraction*, leads us to the confines of mesmerism. "Absent-mindedness" is thus the initial stage of a condition which carries us very close to the borders of the mesmeric state. Many persons absorbed in a train of thought do not hear when they are spoken to, and are practically shut out, for the time being, from all participation in the affairs of the outer world. If we can further imagine two points, or phases of mind, we shall succeed in forming an idea of the manner in which the mesmerist produces the state which bears that name. Thus, firstly, if we suppose that the fit of abstraction from the active affairs of this world is produced artificially, by any cause (as by staring long and fixedly at an object, or by closing the eyes amid perfect stillness of our surroundings), we may gain an idea of the beginning of the mesmeric state. Secondly, if we can imagine that the fit of abstraction so produced deepens, and becomes much more intense in its nature than is seen in ordinary circumstances,—*so deep, indeed, that, as in sleep-walking, the intellectual parts of the brain remain in abeyance, while the lower centres continue in activity*, we can readily enough conceive how the mesmerised state deepens into and follows that of simple abstraction. It is on this latter account that "mesmerism" has been called "artificial somnambulism,"—that is, induced sleep-walking, as distinguished from that state when produced naturally. And, if we substitute for the natural ideas of the sleep-walker those which are impressed upon the lower centres of the brain by the mesmerist, we find a perfect parallel in a general way between somnambulism and mesmerism itself.

There is a point of some importance in connection with the study of mesmerism, and one which I am convinced has not always been so prominently noticed as it deserves—namely, the fact that only certain individuals are susceptible of being "mesmerised." As a general rule, it is the impressionable and excitable who are found to be the subjects of the mesmeriser's art. Every operator knows this fact, and acts upon it. In the entertainments to which allusion has been made, the operator invariably demands or contrives that he shall have as many of his audience on the platform as he can induce to offer themselves for experiment. He knows by experience that out of, say, a dozen persons, only some three or four, on an average, will succumb to his "will." There is always a number of those who offer themselves dismissed from the platform as unsuitable subjects. These are matter-of-fact persons, not given to day-dreaming; persons who like to know the "reasons of things," and who, from the robust character of their mental state, are not in the least likely to drop their personality—or, in plain language, "to lose their heads"—at the behest of any operator. It appears thus to be a plain inference that some persons are far more susceptible to the sway of the "mesmeric" art than others. Other things being equal, it will be found that it is the impressionable minds which most easily succumb.

Of old, Mesmer induced the mesmeric state by simply making his patients look fixedly at a bright crystal, to which, of course, magical powers were attributed. I have seen a person pass into this state through being asked to gaze at a button on the operator's coat. Dr. Tuke remarks "that other methods are effective, as the monotonous sensory impressions produced by passes—the common practice of operators,—by counting up to several hundred figures, by listening to the ticking of a watch, &c." His assertion that "in a milder form we do the same sort of thing constantly in trying to go to sleep," is an observation of importance; while his words that he is "often surprised that persons do not sometimes throw themselves into an actually hypnotic condition in attempting to go to sleep," are also worthy of remembrance. They show that, after all, there is a borderland common to natural sleep, to sleep-walking, and to mesmerism. What we further require for the full understanding of the latter condition is the knowledge of the difference of brain-action, which leads from sleep and dreams to that of the mesmerised state.

Dr. Tuke tells us that the principle illustrated in all modes of producing the mesmeric state is "on the physical side" of things, the stimulation of some nerve of sense—that of sight or hearing, for example—which lies in close relation to the brain. The constant "irritation" of such a nerve tends to exhaust and weary some part of the brain, and thus induces, we may reasonably suppose, dulness of the ordinary work of that part. The parallelism is seen to be very close here between sleep, as the restorer of wearied brain power, and the mesmeric state resulting from the exhaustion just described. The mental side of mesmerism is "the rivetting the attention on one idea." "Looking at an object," continues Dr. Tuke, "is not essential, for the blind man may be hypnotised, and in susceptible persons the merely expecting to be hypnotised is sufficient to induce it, the expectation in this case involving the concentration of the attention on one point." The analogy between such a condition of mind, in which, say, through being told that he will become mesmerised at a given hour, a person actually exhibits that state, and the "faith cures," which are likewise the result of ardent expectation, is too close to be overlooked.

Fly-paper.—Take of resin, in clean pieces, four ounces; castor-oil, two ounces. Melt together by means of a water-bath, and spread on sized paper. If it should be an advantage to have something sweet, it is probable that glucose, thickened by an addition of dextrin or gum, would be very attractive to the flies. But, as this mixture would be liable to soak through paper in very hot weather, it would probably be safest to spread it on paraffined paper.

Sanitary Inspections.—Fee for Survey and Report, in London, 2 Guineas. Estimate given and Improvement Works carried out when required.—The Sanitary Engineering Co., 115, Victoria-street, Westminster, S.W.—[Advt.]

The Family Circle

"The child is father of the man."—*Wordsworth.*
"In bringing up a child, think of its old age."—*Joubert.*

SOME USEFUL HOUSEHOLD RECIPES.

By Mrs. Thwaites.

Curry of Australian or Cold Meat.—Fry two onions in a saucepan with two ounces of dripping until they are a nice brown; mix one and a half tablespoonfuls of flour with two teaspoonfuls of curry powder, sprinkle this into the pan, and fry it for the space of one minute; add three-quarters of a pint of either cold water or good stock, and stir well until it boils. Season it with salt and a little pepper; a quarter of clove of garlic is an improvement. Something of an acid nature should always be added to the gravy for a curry before the meat is put in—a sour apple cut small, a few green gooseberries, the juice of a lemon or a tablespoonful of vinegar—and it may be useful for people living in the country that a small piece of rhubarb will produce the same effect as any of the above-named acids. Being in season nearly all the year round, it is available when some of the other things are not. Cut up one and a half pounds of any kind of cold meat into small dice, or use the contents of a two-pound tin of Australian meat; the latter has so much gravy about it that there will hardly be as much in the tin as there is in the cold meat. Still, the gravy is good, and will both improve the flavour and add to the nourishment of the dish. Stir the meat into the curried gravy, cover close, and leave it to stand for one and a half to two hours; upon no account let it boil. Serve with boiled rice.

Broiled Fish.—Slices of cod, hake, &c., may be used for this, and it is best cooked under the deflector of a gas-stove. Wash and thoroughly dry the pieces—they should be about one inch thick—dissolve two ounces of butter, or use a tablespoonful of salad oil, draw the fish lightly through this, and place it on the bars of a grid; the grid is placed in a tin, and set under the gas. Do not let the gas be nearer to the fish than, say, one and a half or two inches. In about seven minutes it will be slightly browned, turn carefully over and brown the second side. Take up on a hot dish, pour over the small quantity of gravy that has dropped from it; no other sauce will be required. Fish so cooked may be eaten with safety by dyspeptics, not disagreeing, as fried fish might, and it is better than boiled fish, because its flavour is fully retained.

Cheap Lemon Pudding.—Carefully boil four medium-sized potatoes, dry them well, and mash them through a sieve, add one ounce of butter, the grated rind and juice of of two lemons, three to four ounces sugar, one egg, and a tablespoonful or two of stale bread crumbs; the exact quantity must be determined by the consistency, which should be that of a thick batter. Line a dish with light, short crust, pour in the mixture, and bake in a moderate oven for about half an hour.

Blackberry Jelly.—The juice of the blackberry is an old-fashioned, and by no means to be despised, remedy for simple cases of diarrhœa. Jelly is a better preparation to keep for this purpose than jam. Take four quarts of blackberries, freshly picked and dry. Put them into a preserving-pan with one quart of water; boil gently for one hour. Pour the whole into a coarse calico jelly-bag, fixed between two chairs; let the juice run through. Do not squeeze it, or its clearness will be spoiled. Towards the last, a little pressure may be used, but the juice so expressed must not be mixed with the rest, but may be made into a jelly for immediate consumption. To each pint of the juice allow three-quarters of a pound of sugar. It is best to select sugar containing the smallest amount of water; the white sugar with very large crystals is by far the best and purest that can be used. Boil the juice and sugar together, stirring gently with a wooden spoon. As the scum rises, remove it with a silver spoon; when the scum has ceased to rise, increase the heat, and boil as fast as possible, still stirring, to prevent catching on the bottom of the pan. It is impossible to say exactly how long the jelly must be boiled. A certain amount of water must be evaporated, or it will not stiffen or keep. This depends upon the kind of pan that is used; a broad, shallow pan is decidedly the best. Take a little up on a cold plate and cool it; if it shows a moderate degree of stiffness, it is done, and should be poured into small pots and tied up at once. As a remedy for diarrhœa, put two tablespoonfuls of this jelly into a pint and a half jug, with about half an inch of cinnamon stick; fill up with boiling water, stand until cold, and give a tablespoonful either alone or with a little cold water.

Blackberry Jam.—Four quarts of fresh blackberries, four pounds of sharp, good, cooking apples; peel the apples, cut them in quarters, and take out the core, but do not cut them again; put them in the preserving-pan with half-a-pint of cold water and six cloves, cover as close as possible with a plate laid down upon the apples, set them over a very gentle heat, and cook until quite soft; put in the blackberries, boil for half an hour; put in five pounds of large crystallised sugar, boil fast from a half to three-quarters of an hour, stir to prevent burning, and remove the scum as it rises; put into pots and tie down at once.

COCA OR CUCA LEAVES.—The new stimulant, gives renewed life and vigour to the *Weary* and *Overworked*. Dr. Blunt, of Northampton, says:—"The recuperative powers of this restorative are truly astounding." Sample packets, together with medical and scientific opinions, 13 stamps, post free, from J. T. Marks & Co., 17, Newcastle-street, Farringdon-street, E.C.—[Advt.]

Smokers will be interested to know that briar-wood pipes are not made of the briar at all, but from a species of heath—*Erica arborea.* They are made at Sienna and Crossette, and exported to France from Leghorn.

Pyrethrum Roseum as a Disinfectant.—Professor C. V. Riley, the well-known American entomologist, has presented to the Committee of the International Forestry Exhibition in Edinburgh a series of reports on the best mode of preventing the damage done by insects to trees. He is strongly of opinion that for the destruction of the micro-germs to which so much epidemic disease has recently been traced, effective use might be made of the pyrethrum roseum of Asia, which, he says, has lately been imported into America, and is cultivated in large quantities for the sake of its flowers, which contain a volatile oil of great value as a field insecticide. As to kerosene as a disinfectant, he has found the subjoined formula particularly efficacious:—Kerosene, two gallons; common soap, half a pound; water, one gallon. The mixture of soap and water is added boiling hot to the kerosene, and the whole is then churned with a force-pump for five or ten minutes, forming a cream, which thickens on cooling, and adheres without oiliness to the surface of the glass. From this formula three gallons of emulsion are obtained, which, with water, may be made into three gallons of wash, the cost being about three farthings a gallon. In applying it a force-pump and hose with a nozzle (newly invented by Professor Riley) are used, the new nozzle being capable of producing the finest atomised spray.

Our Papers on Popular Science.

"Blessings on Science! When the Earth seemed old,
When Faith grew doting, and our reason cold,
'Twas she discovered that the world was young,
And taught a language to its lisping tongue."
—*Charles Mackay.*

TWELFTH PAPER.

HEAT.—VII.

By Edward H. Riches, LL.D., F.R.A.S.

It is easy to see how it is, as we stated at the close of our last paper, that animal heat is produced by the chemical changes which go on in the nutrient fluid of our bodies. For we know that a large quantity of oxygen gas is taken into the lungs and is absorbed by the blood during the act of respiration. In the blood there are various compounds of carbon which have been taken in with our food, and the oxygen mixes with these. It is thus by the union of the oxygen and the carbon that the carbonic acid gas is produced, and when the blood again reaches the lungs during expiration this gas is given out. Now, just as when oxygen and carbon unite we know that heat is the result, and so it is that this similarly ensues when the union takes place inside the body, and it is thus by the circulation of the blood through the system that the temperature of heat essential to animal life is produced. There is less oxygen given out of the system in the form of carbonic-acid gas than is absorbed; and this, it is supposed, enters into combination with hydrogen (producing the water given off from the body) and with compounds of hydrogen, nitrogen, and carbon, and in this way assists in raising the temperature of animal heat.

This theory of animal heat, which we have briefly explained, is somewhat borne out in the fact that in old or debilitated people a low degree of temperature of the body is often found, when the quantity of blood is small and circulates but slowly; also, in the case of inflammatory disease with a higher temperature, the blood is always found to be circulating rapidly. It is pretty well known that in proportion as animals possess the power of locomotion, heat is evolved from their bodies; and the amount of heat possessed by animals not gifted with the power of moving is usually very little above that which is discovered to exist in the surrounding media, and resembles somewhat the heat which is given off by plants. We may certainly conclude that in the case where much muscular exercise is going on, there is an extra demand made upon the processes of nutrition in action within the system, and it is thus that we should expect to find a less amount of heat developed in the invertebrate animals than in the vertebrate class.

It is known that fishes and reptiles, amongst the vertebrate class, possess the lowest temperature, and this has been found to be from 0·7 deg. to 2·7 deg. above the surrounding medium. The usual temperature of the human body at such parts as the mouth, the armpit, &c., is found to be from 97·7 deg. to 98·6 deg.; and, in health, the human blood is found to have a temperature varying from 100·6 deg. to 101·75, and, in disease, this temperature rises to 106 deg. or 109 deg. It is also known that during sleep the temperature, which, in the case of healthy persons, attains its maximum during the day, falls from 1·8 deg. to 2·7 deg. It has also been found that the temperature of the interior of the body in tropical climates is from 2·7 deg. to 3·6 deg. higher than in temperate ones.

The clinical thermometer for testing the temperature of the body is a very useful thing to have in the house. That sold by Mr. Casella, 147, Holborn, London, the inventor and introducer of them to the medical profession, are most perfect, errors or loss of index being impossible. They are easy to use, and the patent bold magnified index is good for saving time and trouble in taking observations.

Birds develop a greater amount of heat than any other animals, and this, doubtless, is so ordered, because, as was explained in our last paper, moving air of equal temperature with still air produces a sensation of lower temperature; and in the case of most of the mammalia there is always found to be a higher temperature than in man. It must not be forgotten that this temperature or heat, whether it be in *our* bodies or in those of other animals or plants, is the result of certain laws which are known to exist in relation to heat.

The diffusion and emission of rays of heat or light, from a heated or luminous body, is called *radiation*, and such heat so distributed is termed *radiated heat*. These rays of heat are always being emitted from all bodies, whatever may be their temperature or composition, and this radiated heat varies in the case of different bodies; the degree of intensity depending not only on the temperature of the body, but upon the material composing the body, and also upon the nature of its surface. It is easy to apprehend that the degree of intensity of radiation will depend upon the temperature of a body radiating heat; for example, if we have two pokers, one red-hot and the other white-hot, the radiation from the latter may be practically discovered to be the most intense if it be brought within a certain distance of the face. A piece of silver will be found to radiate heat far less readily than a lump of charcoal; and to show, too, that the radiation is regulated by the condition of the surface of a body (alluded to above), it will be found that polished surfaces are bad radiators of heat as compared with dull, rough surfaces, which radiate readily. Thus it may be borne in mind that *good reflectors* of heat are *not good radiators*; in fact, those bodies that possess the greatest powers of reflection show the least powers of radiation.

The relative proportions of the radiating powers of a few different substances may perhaps here be mentioned. Let us suppose that the radiating power of a blackened surface of tin be, say, 100, then that of a steel plate would be 15; that of tin, 12; that of tin scraped bright, 16; that of tin when scraped with the edge of a file, in one direction, 26; and when scraped again across the other way, 13; that of a surface of clean lead, 19; that of lead when covered with a grey crust, 45; that of a thin layer of isinglass on lead, 80; that of resin, 96; that of letter-paper, 98; and that of ice, 85. It may be noticed above, that when the surface of the tin was scraped with the file, the radiating power was changed; and so it is that all rough surfaces, as is also the case with blackened surfaces, throw off heat far more readily than those surfaces which are smooth and polished. The heat which is radiated by the sun is different from other radiant heat, for it passes through air, glass,

A Valuable Invention.—It is gratifying to learn that Mr. R. Adams, of 17, Blackman-street, London, S.E., whose fanlight-openers and silent door-springs are being extensively used, has received large orders for his Patent Reversible Window. The sashes, although they slide up and down in the usual way, can be instantly turned inside out, enabling anyone to clean each side of the glass with ease, while standing in the room.—[Advt.]

Loss Prevented! Time and trouble saved, and linen and clothing protected, by using the "London Linen Marker," Name, Monogram, or Initials, 2s. 6d., post free. Name or address in Self-Inking Nickel Press, 3s. 6d. to 4s. 6d., complete. Stamps for business or private use. Send for patterns. The London Rubber Printing Co., 33, Cheapside, London, E.C.—[Advt.]

water, and transparent bodies very readily; whilst the heat radiated by other bodies, though not obstructed by air, is nearly entirely absorbed upon passing through either of those substances just mentioned.

The intensity of heat-rays decreases or increases according to the same law which affects light—that is, as the square of the distance inversely. The greater the obliquity of the rays with respect to the radiating surface, the less is the intensity of the heat. If a canister filled with boiling water be used, avoiding a source of heat accompanied with light, be placed in the focus of a polished concave metallic reflector, the rays are collected, and can be thrown off to another reflector, when they are again brought to a focus, discoverable by an air-thermometer. It has been discovered that out of 100 rays, silver reflects 90, bright lead 60, and glass 10; and if we use, say, a glass concave mirror to reflect the rays of the fire in our grate towards our face, little or no warmth is experienced, but if a concave tin plate be used, the heat is reflected very sensibly.

But as to the *reflection* of heat, that is, when it is caused to *rebound*, or be *thrown back*, from the surface of a reflecting body, that will be touched upon in a subsequent paper. Also what is meant by *absorption* will be fully explained, although the relation between radiation, absorption, and reflection, and the manner in which the first two may balance each other, has been shown by experiment, and perhaps this may be briefly explained here. For the experiment was used a metallic vessel filled with hot water, and a differential thermometer one bulb being shielded by a bright metallic disc, and the other with a blackened one; one surface of the metallic box which contained the water was also polished and the other blackened. When the blackened side of the box was placed opposite to the bright metallic screen, no effect whatever was produced on the thermometer, because the radiating power of the black surface was neutralised by the non-absorptive and good reflecting power of the bright metallic disc. But upon the same side being opposed to the blackened disc, the thermometer was found to be at once affected. And so, but reversely, upon the polished side of the box being opposed to the blackened disc, little or no effect was perceptible, because the highly-polished surface did not radiate heat easily.

"THE MAN WITH THE WAX HEAD."

Some terrible stories are told by the burial-parties after the battle of Tel-el-Kebir of the severe nature of the wounds inflicted by modern arms of precision. In one case the officer in charge found a poor Egyptian who had been left for dead, with the upper part of his face blown quite away. He was, however, still alive, and, notwithstanding his fearful injuries, was by the unremitting care and skill of the English doctors fairly on the way to recovery, when he was attacked by dysentery, which proved fatal. A different fate, however, if not a more fortunate one, seems to have awaited Jean Moreau, a French artillery-man, wounded in the Franco-German war, whose story is told by General Ambert in the second volume of his "Souvenirs Militaires," which is shortly to be published in Paris.

Moreau entered the service in 1870, and on Jan. 3, 1871, was enagaged in the affair of Bapaume. Towards three o'clock in the afternoon, while he was loading a cannon, he was struck down by a shell, which, bursting across his face, carried away his nose, eyes, the upper jaw, and a portion of the lower. He was left for dead on the field, but after a time recovered his senses, and by chance staggered, falling at almost every step, on the road to the village of Ervilliers. The colonel of the 24th Regiment sent him from this place by carriage to Arras the next morning, where he stayed till the Oct. 4 following. He was transferred to the military hospital of the Val de Grâce at Paris a fortnight later, and remained there till March 26, 1872, when healing was nearly complete. All the soft portions of the fore part of the head having disappeared, and the bony framework being crushed in various places, the unfortunate man presented the appearance of a veritable death's head, with two cavities for the eyes, one for the nose, and a large opening for the mouth. However, by ingenuity and patience, a wax resemblance of a face was invented and fitted with the utmost exactitude to the healthy portions of flesh which still surrounded the immense scar. The adhesion, which is almost hermetic, was completed by a natural cushion of skin, which thus as it were keeps the border of the mask in a groove. The inner cavity has also been utilised, one of its uses being, by means of lint, to guard the patient against the effects of sudden alternations of heat and cold, while the upper jaw and the palate are protected by a plate, to which are attached a row of false teeth, and mastication of the hardest kinds of food is successfully performed.

Thanks to the disposition of the natural parts and the ingenious shaping of the mask, and particularly that of the false nose, breathing is rendered possible through its nostrils, and, indeed, has regained the normal direction, from below to above. The system of inhalation is assisted by two small holes towards the inner angle of the eyes creating a current of air, the eyes themselves, of course, being closed. The sense of smell, strange to say, has been regained, while the voice possesses its natural tone and clearness. Thus Moreau—who, when he removes his mask, it is needless to say, presents a most hideous aspect, in consequence of the disappearance of great part of the bony portions, as well as the muscles which should cover them, and of whose head there literally remains only the brain and the cranium—is enabled by this wonderful exercise of medical skill and constructive talent to breathe, eat, speak, smell, and even, so it is said, to play the flute. The mutilated soldier, who is fond of chatting about his campaigns, possesses that resigned air common to blind men, and his sense of touch, moreover, has become excessively developed. He lives at Favril, Landrecies, in the Nord Department, and ekes out his pension by the sale of a pamphlet recounting the facts of his wondrous cure. "Perhaps," says General Ambert, "it would have been well to have kept silence about this poor fellow; but it is not sufficient to only show the glories of war, every one should know the sacrifices of the soldier. This one has given more than his life, for each day which passes is a martyrdom." But Moreau never complains. He is held in great respect by those who know him, and feels a genuine pride in showing the Cross of the Legion of Honour on his breast to the many curious travellers who turn out of their way to see the "homme à la tête de cire"—the "man with the wax head."

Medical and Sanitary Exhibition, 1881.—Reward of Merit.—International Health Exhibition, 1884.—Stand 69.—Diabetes. Van Abbott's Gluten Bread, and all other suitable Foods for Diabetics, Dietary Table, Menu, Cooking Receipts, and Price List, post-free on application. Delicate Children. Van Abbott's Hypophosphite of Lime Biscuits, for Children suffering from Debility, Deficiency of Bone, or Ricketts. See the *Lancet* and Health. Constipation. Van Abbott's Bran Biscuits. Dyspepsia. Van Abbott's Malt Biscuits. Van Abbott's Vegetable Bread and Milk, Saccholac for Infants, Imperial Granum, Rolled Avena, and all American Cereals for Infants and Invalids. Hathorn Table-Water direct from the Springs in Saratoga, U.S.A. G. Van Abbott 5, Princes-street, Cavendish-sq., London, W.—[Advt.]

Jottings from the Journals

"Th' ingredients of health and long life are
Great temperance, open air,
Easy labour, little care."—*Sir Phillip Sydney.*

Adulterated Fruit-Jam.—F. A. Adams has made an interesting report on English commercial fruit-jams, of which he has analyzed a number. There being no guide or reliable process previously known or agreed upon, the author had to evolve a method of his own, and in order to start from correct premises, prepared a series of pure jams himself. The constituents to be determined chemically were: glucose, cane-sugar, other soluble matters, ash, and moisture. The sugar in one hundred parts of dried jam amounted from 74·77 to 96·98 per cent., and it was found that most of this is *inverted.* In this lies the chief distinction of the different jams experimented on; for while in the author's home-made jam not more than about 6·71 per cent. of *uninverted* sugar could be found in the commercial varieties a good deal of it remains uninverted. The principal ingredient of adulterated jam is apple pulp, which is easily recognised by the behaviour of the cells of the pulp towards tincture of iodine. While it is next to impossible to actually identify the peculiar cells of the blackberry, raspberry, &c., under the microscope, and the identity of these jams can be deduced more safely from other considerations, apple jams may be rendered evident, under the microscope, by the fact that its cells—to the exclusion of all other cells—are staind a characteristic pinkish purple or greenish colour. In the raw apple this colour does not necessarily occur when treated with iodine, but always occurs after boiling the apple pulp with dilute acid; but the natural acid of the fruit is usually sufficient by itself gradually to determine the reaction.—*The Analyst.*

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Forbidden Colouring Materials in France.—Serious accidents have frequently resulted from the employment of wrapping paper coloured with poisonous materials for packing alimentary substances. The "Préfecture de Police," Paris, have therefore issued the following regulations:—Manufacturers and dealers in all kinds of food are forbidden to use the undermentioned colours, and will be held personally responsible for any accident which may occur from such use of them:—Mineral Colours: Containing copper—"Cendres bleues," mountain blue. Containing lead—Massicot, minium, pale orange, oxychloride of lead, Cassel yellow, Turner's yellow, Paris yellow, white lead, ceruse, silver white, Naples yellow, sulphate of lead, chrome yellow, Cologne yellow, chromate of barium. Containing arsenic—Arsenite of copper, Scheele's green, Schweinfurt green, vermilion. Organic Colours: "Aconit Naples;" fuchsine and its immediate derivative, such as Lyons blue; colouring materials containing nitrous compounds, such as naphthol yellow, Victoria yellow; tropeolines, xylidine red, &c. Children's toys must not be coloured with poisonous pigments.

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Sanitary Yachting.—That yachting is a particularly healthy amusement there can be no doubt, but whether any special care is taken to make it so is not so certain, and it may be that its sanitary condition might be improved. Living almost always out of doors and constantly breathing the fresh sea air is sufficient in itself to promote health; and when to this is added that the food on board is generally plain and simple, it is easily understood why it should be so health-giving. It is not, however, suitable for all kinds of invalids, and the extremely weak who require absolute rest and quiet would certainly not benefit by yachting, unless the vessel lay constantly in still water; and under such circumstances there would seem to be no more advantage in living on board than ashore. When at sea, even in the finest weather, when there is any wind there is some motion; and one never knows, when making a passage, how soon the sea may get up. Whilst this is the case with sailing vessels, it is still more so with steam yachts, in which the engines always cause more or less vibration. But when absolute freedom from motion is not necessary there is, perhaps, no pleasanter or more effectual means of regaining strength than yachting is. The total freedom from all restraint, and the constant change of scene, have peculiar charms for all; whilst to men of business the absence of morning letters affords rest to the brain not easily obtained in any other way. In these days of steam and electricity, this last element of pleasure is not, however, so general as in former years, when steam yachts were scarcely known; and we doubt if the introduction of steam has done much to improve the sanitary condition of yachting. As the cost of maintaining a yacht is in proportion to her tonnage, it is evident that the larger the party on board is, the less will be the expense individually; and, therefore, every effort is generally made when planning the accommodation to get as many sleeping berths as possible. In doing this, the cabins have to be made just small enough to allow a full-grown man to lie in the berths, and thus they are cramped, uncomfortable, and, what is worse, often badly ventilated. There can be little comfort in a little cabin of little more than six feet in length and a few feet in width, and in which besides the berth and washstand, clothes have to be stowed away. And yet, in many small and even large vessels, this is the case. It would surely be better to devote more space to the sleeping cabins, even if it was necessary to curtail the saloon somewhat in order to do so. Most of the modern-built yachts are fairly well ventilated, but an improvement in this respect might often be made with advantage, especially as regards small vessels. In these the sleeping space is necessarily small, but with skylights and proper ventilators on the fore and aft ends there should be a sufficiency of good air admitted at all times, and in all kinds of weather. Steamers require more ventilation below than sailing vessels, but as the deck room is not so much required, and as a little extra top-weight is not of quite so much consequence, there need never be any difficulty in obtaining it by placing plenty of skylights on deck. Eating and drinking to excess is certain to produce ill-health anywhere, but when, as is generally the case on board yachts, little exercise is taken, it is doubly injurious, and therefore care should be taken to avoid over-indulgence in this respect. Want of exercise in itself is not, perhaps, always injurious if the living is moderate; but as much as possible should be taken at all times, and when in harbour a daily walk should be an infallible rule. It is, of course, impossible to lay down laws for preserving or restoring health; but yachting, if pursued in the manner we suggest, seems specially adapted to secure both, and we cannot help thinking that paying for it is as pleasant and economical as feeing the "doctor for a nauseous draught."—*Land and Water.*

International Health Exhibition. — Eastern Gallery. — Gas Superseded by Daylight.—See Chappuis' patents. 69, Fleet-street.—[Advt.]

Swimming and Ling's Swedish Exercises.—Mrs. Florence Williams, Certificated Teacher. Schools and private families attended.—The Crown Baths, Kennington Oval, S.E.—[Advt.]

Recreation and Health

"Health is the vital principle of bliss,
And Exercise of health."—*Thomson.*

HEALTH AND HOLIDAYS.

FOREIGN HEALTH-RESORTS.—XII.

By a Physician.

Plombières.—A small town of 1,500 inhabitants, situated in a deep valley in the Vosges mountains, at a height of 1,350 ft. above the level of the sea. The Plombières waters are sodio-bicarbonated and arsenical, clear and colourless, without smell, and very nearly tasteless. Their temperature varies from 50° to 150° Fahr. They are employed both externally and internally, and are especially useful in all complaints relating to the intestines. Dyspepsia, gastralgia, and disorders of a gastro-intestinal character, are successfully treated here, and the waters are highly beneficial in cases of catarrh of the stomach and long-continued diarrhœa. They are also prescribed with much benefit in many forms of nervous affection, such as facial neuralgia, chorea, headache, &c., and are of advantage in chronic rheumatism, lumbago, and many diseases attacking the joints. Plombières possesses no fewer than six hydropathic establishments. Of these the principal is the "Bain Napoléon." There is also a hospital. Life at this health-resort is of a fairly attractive nature, and within easy distance of the town there are many interesting places to visit. The season opens in May, and ends with the close of September. Hotels: Hôtel de l'Ours, Grand Hôtel, Hôtel Tête d'Or. Fares from London, *viâ* Calais, Paris, and Nancy: First class, £5; second class, £3. 15s.

Pontresina.—A picturesquely-situated village in the Engadine, within an hour's walk of St. Moritz, and five miles from Samaden. It is built at a height of 5,915 ft. above sea level, and, from its position, forms an admirable centre for viewing the beautiful Alpine scenery of this portion of the Upper Engadine. Almost at its very door, so to speak, rises Piz Languard, the "Rigi of the Engadine," and within convenient distance are the glaciers of the Morteratsch and Roseg. During the day, Pontresina, being much exposed to the sun, is very warm, and on this account the extreme cold of the night time is more bitterly felt. Hotels: Hôtel Enderlin, Hôtel Roseg, Weisses Kreuz. Fares from London, *viâ* Calais (or Boulogne), Amiens, Chaumont, Bale, and Zurich, to Chur, thence by diligence: First class, £7. 2s. 6d.; second class, £5. 4s. 6d.

Royat les Bains.—A village with a population of about 500, rather more than a mile from Clermont-Ferrand, in department Puy-de-Dôme. It possesses four mineral springs, having a temperature of from 66° to 95° Fahr., and is built at a height of nearly 1,400 feet above the level of the sea. The waters contain the bicarbonates of soda, lime, iron, and magnesia, with a very minute quantity of arsenic, and a certain proportion of lithia. They are especially serviceable in diseases which arise from a gouty disposition. The form of this complaint best treated here is the atonic, or, in other words, gout which is associated with an insufficiency of blood. The other diseases allied to such a constitution as we have indicated, for which the Royat waters prove beneficial, are dyspepsia, many varieties of skin trouble—eczema, acne, impetigo, &c.—and certain forms of Bright's disease. They are also useful in affections of the chest, especially when administered in the form of inhalation; and invalids suffering from pulmonary catarrh, chronic bronchitis, emphysema, and catarrhal asthma, usually derive much benefit. Cases of early consumption are said to do well here, and the climate, by many authorities, is considered highly suitable to such a condition. The thermal establishment is one of the most handsomely-appointed in France; it contains no fewer than ninety-six bath-rooms, each bath being fitted with a douche. There are, in addition, separate douches of various kinds, including carbonic-acid, two inhaling rooms, a large swimming-bath or *piscine*, and, lastly, a gymnasium. In connection with the Thermal Établissement is a building for hydropathic treatment. This likewise is admirably furnished throughout, and fully supplies every want. Without saying that Royat is exactly a gay place to stay at, it is yet very pleasant, and in the surrounding neighbourhood the visitor will find much that will interest him. There are, in the village itself, two casinos, a concert-room, library, and park; and, as a rule, a military band plays in the latter during the afternoon drinking-hour, between three and four, when the scene presented is exceedingly animated and amusing. The season extends from May to September. Hotels: Continental, Grand, St. Mart, Victoria, Bristol, &c. Fares from London, *viâ* Calais, Paris, St. Germain-de-Fossés, and Clermont-Ferrand: First class, £5. 2s.; second class, £3. 16s. 6d.

Samaden.—A village in the Upper Engadine, of which it is the capital. No doubt it is owing to this fact, in addition to its close proximity to Pontresina and St. Moritz (about five miles from each) for which it acts as a sort of overflow refuge, that it is as popular as it is, for the situation of the village is extremely uninteresting. Dr. Burney Yeo thinks, too, that good accommodation may have something to do with the matter, and that people on their way to St. Moritz and Pontresina, finding themselves so well taken care of, elect to stay here. However this may be, the place though unpicturesquely situated itself, is surrounded by some extremely beautiful scenery, and being only five miles from St. Moritz, the traveller might, generally speaking, just as well fix himself here as at the more fashionable resort. Samaden is built 5,610 feet above the sea, and has in the immediate vicinity many highly interesting and agreeable walks. The climate is tonic and bracing. Hotels: Bernina, Kurhaus, Hôtel des Alpes. Fares from London, *viâ* Calais (or Boulogne), Amiens, Chaumont, Bale, and Zurich to Chur, thence by diligence: First class, £7. 1s. 6d.; second class, £5. 4s.

San Remo.—A town on the Western Riviera, 16 miles from Mentone, 32 miles from Nice, and 85 miles from Genoa. Population, 17,000. It has long been known as a winter health-resort for consumptive patients, but its reputation in this respect has greatly increased within the last few years. The climate of San Remo is very much the same as that of Mentone, and it has, therefore, a somewhat higher winter temperature than Cannes or Nice, while from its soothing nature it proves better suited for invalids of a sensitive or nervous temperament. The mean winter temperature at San Remo, from November to April inclusive, according to observations made at the Government Observatory, is 51·3 deg. Fahr., as compared with 51·5 deg. for the same period at Mentone, 50·8 deg. at Cannes, and 50·9 deg.

Pure Water is such a vital necessity that, without it, illness is certain. None are more prone to the ill effects when impure than the young. To ensure a pure supply send a post-card to the London and General Water Purifying Company, Limited, 157, Strand London, W C., who will return particulars post-free.—[Advt.]

Scott's Midlothian Oat-Flour.—Messrs. A. & R. Scott, of Kingston, Glasgow, and Finsbury-square, London, have prepared a singularly pure and nutritious "Oat-flour," which bids fair to take high rank among the food products which are specially adapted for infants and invalids, and for the use of dyspeptics in particular, whose digestion is weak, and whose stomachs refuse to assimilate foods of ordinary kind.—Ed. Health.—[Advt.]

at Nice. There is, also, less difference between the day and night temperature than at Cannes or Nice, and less variation between summer and winter. The average number of rainy days during the six winter months is twenty-seven; rainfall, 11 inches. The town is well protected from the northerly winds by a triple barrier of hills and mountains, of which the lower are covered with olive trees and the higher enshrouded in firs, while in the background rises the third barrier, the Maritime Alpes, to a height of over 7,000 feet. Towards the east, however, San Remo is not particularly well sheltered, and it is consequently from this quarter that the winds prove most annoyance. The Mistral also is felt here. Generally speaking, San Remo may be said to be adapted for the same class of complaint as other health-resorts on the Western Riviera, with this exception, that, as we have pointed out, the climate being for the most part milder and less bracing, it is better suited for nervous and excitable constitutions. San Remo is usually spoken of as having little that is attractive in the neighbourhood to offer the visitor, but Dr. Bennet, in his book "Winter and Spring on the Shores of the Mediterranean," tells us that no one can have any idea of the exceeding beauty of the environs of San Remo until they have penetrated into the recesses of its mountain scenery. Probably this may be so, but then every one has not the health and strength to undertake such a distant excursion, to say nothing of the climbing powers required; and it is of more accessible walks that San Remo stands so greatly in need. The accommodation in the town is excellent and living cheap. Hotels: Grand Hôtel Vittoria, Grand Hôtel Royal, Grand Hôtel de la Mediterranean, Hotel des Anglais, Grand Hôtel San Remo, &c. Fares from London, *vid* Paris, Marseilles, and Vintimille: First class, £8. 13; second class, £6. 9s.

Charterhouse Science and Art Schools and Literary Institute.—The winter session of this, the largest Science and Art School in the United Kingdom, will, under the presidency of the Rev. Henry Swann, M.A., commence on Saturday, Sept. 27. During the late session about 750 students, mostly elementary teachers, availed themselves of the privileges afforded by this institution, and of this number upwards of 500 presented themselves for examination, and were successful in obtaining 146 first-class certificates and also a goodly number of honours certificates awarded by the Science and Art Department of South Kensington. About 200 of our metropolitan teachers attended a course of seventy lectures by J. J. Pilley, Esq., on Hygiene. Most of these were successful in passing Professor Corfield's examination, and thereby made themselves qualified to become teachers of this subject, a subject which, on account of its bearing on the health, and consequently the prosperity of the country, will doubtless in time be introduced into the schools of the poor. At a very nominal fee, instruction of a practical character is given in most of the sciences, whilst in art, at an equally low rate, students, under the direction of five competent instructors, can be advanced in their studies; those desirous of studying art in the day time can do so on Tuesdays and Fridays from eleven till one. Students who aim at becoming proficient in chemistry (organic and inorganic) have the opportunity of working in a well-fitted laboratory capable of accommodating sixty students. Aspirants for university honours can, at a small expense, be assisted in their studies. Lessons in Latin, Greek, French, German, and music are given by well-qualified teachers. Full particulars can be had of the organising secretary, Mr. C. Smith.

Our Bookshelf

"Reading maketh a full man."—*Bacon.*

TRICYCLING FOR LADIES.

Tricycling for Ladies. By F. J. Erskine. (London: Iliffe & Son, 98, Fleet-street, 1884.)

The time has now passed, happily for the health interests of the sex, when the spectacle of a lady on a tricycle was deemed the occasion for an exhibition of wonderment and surprise. The fair sex can now enjoy—with a freedom from remark which is wonderful considering the comparatively short time that has elapsed since the inauguration of the sport—a form of exercise that is both safe, when undertaken carefully and advisedly, interesting, and, above all, health-giving in the extreme. One barrier to the adoption of tricycling as an exercise by ladies has hitherto consisted in the idea that a tricycle is a difficult machine, firstly, to ride and manage, and secondly, to keep in order. But while both ideas contain a minimum amount of correctness, they have, at the same time, been greatly exaggerated, and the publication of the little book before us will certainly go far to dissipate any mystery or difficulty which may have prevented ladies from becoming tricyclists. Miss Erskine—for we presume it is a lady who writes the book—has succeeded in producing a very handy guide to the tricycle, regarded as a ladies' machine. Throughout the book there runs a spirit of encouragement which cannot fail to make converts to the sport, and an equal merit of the pamphlet is the clearness of the directions which the authoress gives.

We agree with the opinion expressed in the *brochure* before us, that the typical ladies' machine should be a light double-driver, and, above all, a front-steerer. That 46-in. wheels, susceptible of being geared up or down, as the case may be, form a fair medium size for ladies' use, is also an opinion in which there will be general concurrence. That the machine should not be plated all over, is also an important piece of advice. Such tricycles look very elegant, no doubt, and are usually high-class machines; but for practical, everyday use, they are not to be compared to the enamelled machine. As the authoress remarks, the slightest rain-shower causes discomfort in the minds of the rider who has invested in a nickel-plated tricycle, and the labour entailed in cleaning the machine is simply enormous.

Boots are to be eschewed by the tricyclist, since shoes give the ankle-tendons and foot-joints freer play. Various shoes have been recommended. The "Perfecta" shoe is a good make; but there are several others which are well adapted for ladies' use. With regard to the all-important topic of ladies' dress for tricycling, the following remarks may be quoted from the book before us:—

"Authorities are divided as to whether petticoats should or should not be worn. Short loose trousers, just reaching below the knee, are comfortable, and obviate the very unpleasant sensation caused by the motion on a vertical machine of the petticoats rolling up into a coil over the knees. A dress which is worn by many experienced lady-riders has, as a part, loose trousers made of the same material as the dress, and coming down only so far as not to be noticed during the stroke. I have ridden with ladies in this dress, and can vouch for their neat appearance. The only drawback I find (in practice) to the use of trousers for riding is that they are much hotter, and have no very great advantage over the other style. For long runs, *flannel should always be worn.* For short runs of four or five miles, ordinary things do not hurt, but for longer dis-

tances, flannel is indispensable. Either red or white will be suitable; it should be well shrunk, and *all wool*. A jersey and contiuations, either in the combination state or separate, should be worn. No linen should be allowed—all bands being made of flannel. Cut and design are best achieved by the aid of patterns from Butterick, but the outer dress is the thing which requires more attention than it generally gets.

"Three things should be taken into consideration—durability, non-liability to show mud and dust, and a fabric composed of *all wool*. In colour dark-green and navy-blue looks very nice, but a homespun cloth of dark-brown, grey or heather mixture is most serviceable, as mud and dust do not show on it, neither does it fade. The C.T.C. cloth is fairly good, but it is a question if it is so serviceable as brown.

"With regard to make, two styles are in vogue—the habit style, and the pleated skirt and jacket bodice. The habit skirt is perfectly plain, and although it answers its purpose fairly well, yet it has a certain *bare* look, and can, like a riding habit, be used only for its own purpose. The pleated skirt has the great advantage in looks, and can (by a simple arrangement for raising the skirt when off the machine) be used also as a walking-dress, which, as *all* cyclists may not be blessed with long purses, is a great advantage; and also, if the cyclist wishes to put up her machine and walk, she can do it without being noticed for an *outré* costume. The skirt should not be made *too* full, as it is very apt in such a case to catch in the cog-wheels, and being "wound up" is a very unpleasant plight. A fulness should be let into the back to allow for the drawing up by the peak of the saddle. In length, when at its *full* length, it should reach just down to the instep.

"The pocket of the dress should be on the *left* hand side, as it is dangerous to have to let go the steering-handle and rummage for a handkerchief. White stockings should on no account be worn, and *woollen* always; cotton are apt to cause blisters, if they get wet, and then dry quickly.

"A word, in conclusion, about tight lacing. No girl can ride well—or at all—if she indulges in that fashionable deformity, a small waist. To ride well, every muscle should be free—everything in full action. Good breathing power will carry a girl up any hill, but a wasp-waisted girl may just have breath enough to "trip" up and down a crowded, dusty street, but not to go along at eight or nine miles an hour on the silent wheel—to row, or climb up the glorious hills of England and the Continent."

As regards head-gear, what is desirable for ladies is chiefly efficient protection from the sun, and we do not agree with the opinion expressed in this volume that white straw sailor hats are suitable for the country; they have rather a "fast" look in town. Surely, in the face of recent fashion, this latter declaration is absurd. We agree that Henry Heath's "boat-shaped" hats are most comfortable, elegant, and in every way well adapted for lady tricyclists. Among the manufactures of this firm, there should be no difficulty in ladies finding a suitable and becoming hat for tricycling wear.

Probably one of the most serviceable chapters in this book is chapter eighth, which is devoted to "general hints" for tricyclists. We reproduce these hints here because they are so apt and useful:—

"When run away with on a double-driving front-steerer, if possible, keep cool, and do not lose your head. If the splash-guard be light, try and check the machine by crushing the metal down on the front wheel. Prevention being always better than cure, examine the bands frequently, and should they not bite, dust some finely-powdered resin on drums till they do. Beware of 'braking' too hard after 'resining.' Never go out without cash. If possible, avoid crowded thoroughfares. If caught in a 'block,' take things easily. If carmen are rude, take no notice. From personal experience, I find that ladies who know how to ride are generally treated with great civility, and a grateful look, or pleasant 'thank you' is never amiss in return. If a feeble person is crossing, or nurse with a lot of children, slacken speed, and let them see there is no hurry. Only 'sixpence-an-hour' riders rush and spring bells just behind people, enjoying the scuffle which ensues. This does not tend to remove prejudices. Always carry stop-bell and gong. Lamps, also, if going any distance, and likely to be out late. When riding head to a stiff wind, do not put on a lot of extra exertion during a gust. Ease off and take things coolly during the gust, pedalling fast during the lull. To take tram-lines safely, cross them at an oblique angle. In passing led horses, go on the side where the man is—if possible, give them a wide berth. To clean a painted machine, paraffin or goose grease, on a rag, is better than sluicing with water. A long hill should be taken at a steady uniform pace. Short rises, such as canal and railway bridges, should be gone up quickly—in cycling phrase, 'rushed.' Don't apply the 'brake' suddenly on a hill, as it causes the machine to rear, and if the tilt-rod is slender, may cause a 'reverse.' If it is imperative to use the brake from the machine running backwards, lean well forward over front wheel. The best way, however, is to use bottom pedal as step, and 'swing' out. If on a rear-steerer, don't check suddenly with the feet—if a single-driver—or a rightabout face movement will result. Lean well back going down hill, and keep the machine thoroughly under command. If control be lost a severe accident is almost certain to ensue. Sole-leather, or wooden blocks, wired on to the spoons, greatly increase the brake power. On a hot day, after riding fast, do not indulge in iced water. When hot, a glass of milk is better than anything else; it should be sipped leisurely, and a biscuit eaten with it. Effervescing drinks are lowering, and the quality of commercial ginger-beer and lemonade is anything but first-class. Carry always, if on a long run, a silk muffler handkerchief, to put on if waiting about in a chilly wind. Riding in waterproof to avoid getting wet is a case of avoiding the frying-pan and jumping into the fire. A drenching, if followed by a thorough change and hot bath, at once, need not be feared. '*Don't*' ridicule every machine but your own; or, treat good-natured criticism as impudence; or, try to 'reel off' a greater distance than any one else ever has done; or, walk into a church as if it were a show."

Teeming with information and sound common sense, as does this little book, we can give it no stronger recommendation than that of advising all lady-tricyclists to include it among the essentials of their machines, and to make its study a prominent feature of their earlier tricycling days.

International Health Exhibition Library (Royal Albert Hall) *Catalogue.* (London: W. Clowes & Sons. 1884.)

This pamphlet, compiled with great care, forms a reliable guide to the literature which has been amassed in connection with the Health Exhibition, at the Royal Albert Hall. It is worth perusal and preserving, if only for the purpose of showing the large field which the twin-topics of "Health" and "Education" cover in our own and other languages.

One part of nitric acid in ten parts of water stains pine wood mahogany colour; polish with shellac varnish.

Sanitary Appliances, Etc.

THE SALZSCHIRF MINERAL WATERS.

We have examined samples of the "Bonifacius Water" and of the "Hessian Bitter Water," imported by the "Bonifacius" Company, 12, Railway-approach, London-bridge, S.E., and have been impressed with the effective and pleasant characters these waters exhibit. Their characteristic feature is the presence of the element *Lithium* in large proportion, while the carbonated character of the waters renders them highly palatable and destitute of the mawkish taste which renders many beverages of the kind unpleasant. The element *Lithium* has attained a high repute in the treatment of gout especially. Dr. Garrod was the authority under whose efforts this drug came to rank as a remedy of importance in the treatment of chronic gout and cases of the "uric acid" habit. Hence, for gouty subjects such waters as those of the Salzschirf springs are to be highly recommended, the habitual use of such a water as the "Bonifacius" tending to prevent the development of symptoms. While the "Bonifacius" spring is intended for general use, the "Hessian Bitter Water" is adapted to act as an efficient purgative and aperient. In the treatment of the habitual constipation from which so many persons suffer, this latter beverage is eminently useful. It is a thoroughly palatable aperient, and as such commends itself for general use, while its tonic properties serve to render this water capable of correcting the habit for the cure of which it is recommended. We can give the Salzschirf waters our full commendation as pleasant, palatable beverages, well adapted for the use of gouty subjects, as well as of those who require an aperient which may be taken with safety under all conditions of the system.

Amongst the most recent applications of the Æolus Waterspray System of Ventilating, Heating, and Cooling are the Walker Memorial Schools, Leicester; Mr. Moon's Consulting-rooms, Harley-street; the new Mission Hall, Wandsworth; the new Baptist Chapel, Stratford; St. John's Church, Waterloo Bridge-road; the Nova Scotia Mills, Blackburn; and St. Mary's Church, Grassendale, Liverpool.

International Health Exhibition. — On Monday September 15, the number of visitors was 55,971, raising the total since the opening to 2,753,027, and thus passing the total number of visitors to the Fisheries Exhibition last year, which was 2,703,051. The Health Exhibition has been open 112 days; the Fisheries was open for 147 days. The daily average up to the present of the former is 24,580, that of the latter during its entire term was 18,388.

Leprosy, Past and Present.—The consideration of this disease at the present time might seem to many as inappropriate as that of the Sweating Sickness or the Black Death of the Middle Ages. Nevertheless, interest in it has been revived by its recent outbreak in the Sandwich Islands, its presence in California, Louisiana, Canada, and some of our north-western States, in which it might be possible to include Iowa; and this must be my excuse, if any is, indeed, needed, for addressing you for a few moments on this subject. Leprosy is, without doubt, the oldest of all known diseases. Its existence, indeed, antedates all history. Its early mention in Holy Scriptures, its incorporation into Chinese law as the second of the five recognised causes of divorce, proves the great antiquity of its existence. In the Middle Ages it was the most prevalent of diseases. In 1226 there were two thousand leper hospitals in France alone, and nineteen thousand of them in Europe. They were in all parts of England and Scotland. Leprosy had almost entirely disappeared from Europe—the last indigenous case in Scotland dying at the beginning of this century. It lingers, however, in some isolated spots, notably in Norway, where, a few years since (1856), there were two thousand cases, and which locality is the source of our supply.

Our Letter : Box

"Conference [maketh] a ready man."—*Bacon.*

NOTICES TO CORRESPONDENTS.

All Communications for the Editorial Department (including specimens of Sanitary Appliances, &c.), to be addressed to "The Editor of Health," 74-76, *Great Queen-street, London, W.C. Those intended for the Publishing Office to be sent to* "The Publisher," *at the same address.*

Contributors are requested to send stamps for the return of the MSS. *in event of non-acceptance. Every care will be taken to ensure the safety of* MSS., *but the* Editor *and* Publishers *cannot hold themselves responsible for accidental loss.*

Correspondents are requested to write on one side of the paper only. The Editor *disclaims responsibility for the opinions expressed by Correspondents.*

LETTERS TO THE EDITOR.

A STRANGE SOMNAMBULIST.

Sir,—Reading your interesting papers on "Sleep-walking and Allied Conditions of Mind," I am reminded of a very curious case in this respect that appeared in *Chambers's Journal* a few years ago. Perhaps some slight account of it may not be without interest to your readers. The somnambulist in question was a girl named Lilian Church, eighteen years of age. The story is told by a school-fellow, who was at the same French *pension* with her; and, after relating how it was that Lilian, in consequence of her trance-like peculiarities, came to be sent there, she thus proceeds:—

"I doubt whether Madame had any idea of the task she was undertaking. Certainly, if she hoped to keep Lilian's condition a secret confined to two or three, she was disappointed, for this strange girl used to fall into these trances at all hours of the day. The most remarkable part of the case was that, although she was downright stupid and deficient of intelligence when awake, as soon as she fell into these sleeps she became quite as remarkably clever. After having heard her fluent conversation in the bedroom, I was greatly surprised to find that she could hardly speak at all when she had been roused from that trance and we had gone down to the *réfectoire* for supper. Her French was of the very baldest English school-girl possible. Happening, however, to fall asleep some days later over a French lesson, to the astonishment of our teacher she began to speak with ease. In one of these trances one of the girls noticed that the top of her thumbs — or, rather, not quite the top, but the part just opposite the nail — was black. She took hold of her hand, and touching it, said, 'What's the matter with your hand, Lilian?' Lilian snatched away her hand, crying, 'Oh don't; you hurt my eyes.' We noticed, after this, that all reading, while in these trances, was conducted by means of the thumbs; her eyes fixed on vacancy, she would sit passing her thumbs from line to line of the book. The lessons thus learned were never remembered in her waking moments, but always came back in any succeeding trance. This peculiarity has seemed incredible to most people who have heard it—and, indeed, is incomprehensible; but it is in all respects nevertheless true. She used sometimes to play the piano in these trances; and although, when awake, she could not play better than a child of eight or ten years of age, she performed very fairly in her sleep; indeed, had it not been for the thumb deformity, she would have played very well; but she had to twist her thumbs in a peculiar manner, to prevent touching the black spot through which she seemed to see.

"Still more extraordinary were her drawing powers when asleep. I have still a portrait of herself done in one of these trances, and one night she drew in crayons on her door an exquisite figure of an angel. Although when awake she could not remember the events which had taken place during her trance, in her trance she solved the difficulties of her waking moments. One night she was much provoked at the appearance of a bonnet sent by her milliner. When she woke the next day, she found that she had got up in her sleep and altered the bonnet most skilfully by letting in some cardboard covered with black silk.

"It was quite a common thing for her to go to bed with her masses of raven black hair down her back, and to find it most elaborately plaited on waking in the morning; and I have also known her alter articles of wearing apparel in her sleep. She also seemed to have a gift of second sight. In one of these trances she was noticed to be in very low spirits, and at last to burst into tears. On being asked the cause of her tears, she said she could

see her betrothed in London, flirting with another girl. Shortly after came a letter from her guardian with such accounts of the young man's behaviour with the girl of whom Lilian had been jealous, that the engagement was broken off.

"She told most of our fortunes in her sleep; but, in my case, I am bound to confess, without success. Whether she was more correct in regard to herself, I do not know. She foretold that she would be killed from a fall from her house at the age of thirty; but it seemed unlikely that she would live to that age if her somnambulism continued, as, after these trances, she often had the most fearful illness, both heart and brain being affected by them. One of the worst of these came on after a trance she had fallen into at church; she walked, still asleep, out with us afterwards, but, unluckily, woke in the Champs-Elysées, and was so terrified that it was with difficulty we got her home. When at length she did so, she had a terrible illness, from which she was scarcely expected to recover. She had the best physicians in Paris, and they one and all declared hers to be a most wonderful case of somnambulism. . . . . The disease (for such of course it was) was accounted for by them as the result of an over amount of brain, causing consequent pressure. She may be said to have had a brain for waking purposes, and one that acted when she was asleep. What one brain knew the other did not. Evidently the sleeping brain was the cleverest. The waking brain lacked intelligence. While the sleeping brain was active she was in a state of somnambulism, and could do things that could not possibly have been attempted in her waking moments. Her condition was, of course, unnatural; it was diseased—very curious and unhealthy. The cleverest doctors in Paris who were consulted could do nothing for her. What became of this extraordinary girl after she left school I do not know."

I have already occupied so much of your valuable space, Sir, that I shall make no comment upon the preceding narrative. Indeed, I only give it as illustrative of certain remarks in your paper. It will, at any rate, be interesting to your readers, I think, even allowing for a slight tinge of exaggeration which I suspect it contains. The exact date at which it appeared in *Chambers's Journal* was June 29, 1878.

Yours, &c.,

Edinburgh, Sept. 6. H. Roscoe Dumville.

QUERIES AND ANSWERS.

We would direct the attention of our correspondents to the fact that, owing to the necessity for sending Health to press early in the week, answers to queries cannot as a rule, appear in the succeeding number of the journal. Every effort is made to secure punctuality in the replies, but we must ask the occasional indulgence of our readers, owing to the large amount of correspondence, which requires assortment and reply.

GENERAL.

B. G., F. O., and Alex. Tait.—Declined with thanks.

A. N.—The medical sessions in England and Scotland begin in October and November respectively. Write to the Dean of the Medical Faculty.

Peter L.—Climate is probably too bracing for you.

Louise.—The book you inquire about is out of print. You can see it at any public library.

Inex.—The volume sent is a quack production, and utterly untrustworthy as a guide to health.

Tom.—The "chyle" is the result of food assimilation, and represents the final stage of digestion. The chyle passes into the blood to renew and repair it. The disease you name as "mesenteric disease," is really one that prevents the chyle from entering the blood in its usual state for nourishing the body.

I. B. G.—1. No. 2. Not adapted for Health.

Andrew Clark.—Muscarine is an active principle obtained from the fly agaric fungus (*Agaricus muscaria*). It produces salivation, flow of tears, perspiration, and purgation. Has been used to check night-sweating.

Pharmacist.—An incense may be made of styrax two-and-a-half ounces, benzoin twelve ounces, musk fifteen grains, burnt sugar half ounce, frankincense two-and-a-half ounces, gum tragacanth one-and-a-half ounces, and rose-water to make a mass. Divide into small tablets.

T. L.—1. Pewter is composed of four parts tin and one part lead. 2. Not at present. 3. Thanks.

Annie Pearson.—1. You will find the information you seek in any Physiology. Read Power's, published by Cassell & Co. 2. Yes; the "Book of Health," published by Cassell & Co., is now being issued in monthly parts.

Codex.—No such preparation is officinal in the British Pharmacopœia; and there is no preparation of that name known in ordinary pharmacy.

Coluber.—There is no poisonous British snake save one, the adder or viper, whose bite may prove fatal. The common or ringed snake and the *coronella* are both harmless. The latter bites, though there is no danger therefrom.

A. West.—The distance is about 400 miles.

T. C. X.—You may try the first, though we cannot assure you that it will succeed.

Nettie.—You mean peroxide of hydrogen, evidently.

Gilbert.—1. See the articles on "Memory" recently published in Health. 2. See last number.

A. T.—The Appui Chain Backs are sold by Moppett, Brighton. See advertisement in recent number of Health.

Orion.—Hartnach's microscope should suit you; cost about £7 or £8.

Tendresse.—We have no information on the point. Write to a trade journal.

Tricycle Replies.—Aller. Not as far as we know. The price paid was not excessive for such a machine.—Toby. No need to be alarmed. Rest is all that is needed.—Single. It is a front-steerer, having a rear wheel as a trailer.—Two Ladies. The Meteor Sociable is a reliable and safe machine in every way.

SANITARY.

Dunrobin.—Leave the house at once. No law can compel you to inhabit an unsanitary house. The medical opinion you had would alone warrant your leaving. Have the premises surveyed, and thus confirm the doctor's opinion.

Insbruck.—A 12 in. fresh water-pipe, 40,000 ft. long, full of water running at 10 ft. per second, has a head due to friction of 304 ft. or 132 lb. pressure. The head required for the rate of discharge through such a pipe is 1,600 ft.

John Craig.—Use carbolic acid or thymo-cresol, and saturate the wood with it.

Cecil.—We are afraid, as the law at present stands, you have no remedy for the carpet-beating. We believe the practice does not fall under the head of a "nuisance"—legally, that is.

J. B.—1. The "Stott Gas Economiser" is that we recommend. 2. The "Rain-water Separator" is made by Mr. Roberts, of Haslemere, Surrey.

T. G.—Rustless iron can be seen at the Bower Barff Co.'s depôt, 23, Queen Victoria-street, E.C.

D. T. E.—1. Apply to the patentees. 2. See sketch in last number of Health.

MEDICAL.

Spes.—You must look to your digestion. Food to be light for a time (milk, fish, light puddings, &c.), and suppers, &c., to be avoided. Rest after food is necessary, and the mixture recommended to "Anxious Inquirer" in Health No. 73 should be taken. Let us hear how you are after a trial of this advice.

Hypochondriac.—You are perfectly right in saying you are not at all as ill as you fear you are. Your case is one of thousands, and you will get quite well by attention to a few simple health rules. What you complain of, you should know is perfectly usual in healthy persons, only quacks say differently. Firstly, be regular in all your habits, and avoid constipation, especially by eating fruit, &c.; secondly, use cold sponging each morning; thirdly, avoid suppers, and don't take fluids late at night; fourthly, take moderate open-air exercise; fifthly, sleep on a hard mattress in a well-ventilated room; and sixthly, for a time, take a teaspoonful of Fellows' Syrup of the Hypophosphites thrice daily an hour before food in a wineglass of water.

Jessica.—Probably your neuralgia affects the hair-colour. This is a well-known result of that affection. Rub in a little of Rowland's Macassar Oil night and morning to the roots, and take fifteen drops *Fer Bravais* in water thrice daily between meals. These measures may prove effectual.

W. R.—Try a course of the tonic above recommended to "Hypochondriac," and try also cold sponging each morning. Some persons are constitutionally affected as you are, without being in any way diseased.

Compositor's Apprentice.—There is no remedy for the dust you say you have to contend with in your trade, save the free ventilation of your room. The only points we should insist on would be your thorough attention to your general health, and to rigid cleanliness of person. We are not aware that printers complain of dust so much as of bad ventilation, heated rooms, and consequent liability to colds.

Forfar, 129.—See and follow advice to "Hypochondriac" in present number. You will get quite well by attention thereto.

M. L.—We should advise you to see to your digestion, and to note whether or not there are any symptoms of "worms," as such

rritation is often indicative of that cause. For the rest, we should advise you to inhale or sniff cautiously the vapour of sulphur*ous* (not sulphuric) acid, which should be kept in a stoppered bottle, and inhaled occasionally. The nostrils might also be syringed occasionally with tepid water, to which a few drops of Condy's Fluid have been added. Take for a time the *Fer Bravais* as ordered to "Jessica" above.

James.—We should advise you to have the nostrils sprayed by a physician with some of the Eucalyptol preparations. Cod-liver oil, to which syrup of iodide of iron has been added, should be taken by you—a dessertspoonful after meals. A consultation with a physician is the advice we give you as best, considering all your symptoms. We can send you address of a reliable Leeds physician, if desired, on receipt of stamped-addressed envelope.

St. Clair.—We suspect the troubles you name are all connected in some degree with the derangements mentioned. For the headaches, try the effect of fifteen grains bromide of potash taken in a wineglass of water, once daily for a few days only. If not bettered by this treatment, write again. The food should be very light for a time, and great attention should be paid so as to guard against constipation.

Demosthenes.—You should keep copies of your questions, and compare these with the answers you receive. Confusion would thus be avoided. Such cases as yours are not uncommon, as the result of some irritation of the parts. Our answer "No" was given in answer to your question "Would the lumps be permanent?" Follow out our advice, and let us hear from you again.

Suspicious.—1. The bill you enclose is merely that of a vendor of toilet preparations, whose professions regarding the various points of personal appearances are, we fear, much beyond the limits medical science knows. The idea of a "medicine" which is to give "a permanent animated tone to the features," is, to our mind, ludicrous in the extreme; while the statement that "*all* skin diseases are improved by one dose" of a pill, is an assertion utterly at variance with common sense. 2. The "Carver" is a good machine, thoroughly praised by Sigma Smith. See tricycle articles in Health.

Cork.—As we have not the passage from the journal referred to before us, we cannot give any criticism on the merits of the advice. Why not write direct to the journal in question? We may only say that sweet and sugary fruits should be avoided by the gouty. Pastry is injurious; oranges and lemons are good; salt should be sparingly taken; and celery has been recommended as good. Only a physician can determine the doses of alkalies which should be taken in any given case of gout. 2. About five or six grains of potass might be contained in a pint of water.

Robert Watt.—1. You had better use simple tincture of benzoin two drachms and orange flower water eight ounces as a cosmetic. This is the Lait Virginal of the French. 2. For ordinary indigestion, let the food be light for a time and take Morson's Pepsine with the food. Rest after meals is necessary.

John Henry.—[Your letter was addressed to the *Publisher* instead of to the *Editor* of Health. Common sense should teach you that a publisher does not conduct a journal.] You have simply been frightened by reading the advertisement of a patent medicine. Take no such medicine as that you have been reading about. Simply see that your food is light for a time, and take a little Pepsine daily with your food as directed on the bottle. A little Bonifacius Mineral Water taken for a day or two would also tend to relieve you. Take a glass of this water an hour before breakfast. More open air exercise is desirable.

W. Simpson.—[The remark regarding erroneous addressing of letters above made in the case of "John Henry" equally applies to you.] See and follow advice to "John Henry" above; and, in addition, be careful to avoid suppers, and to use cold sponging each morning. Take moderate open air exercise. You give no sufficient account of your symptoms.

T. E.—Yours is a case in which a good surgical opinion is necessary. The best plan of relief could only be decided upon after an examination of the knees. We should only advise you here to try the effect of rubbing in warm oil to the right knee joint. Warm and cold water douches might also do good.

C. H.—1. Wash the head twice weekly with tepid water and Quillai bark—a small piece of the latter will make a good lather with tepid water. Avoid the use of a hard brush, and never use a small tooth-comb. Rub in a little glycerine of borax to the hair roots each night thereafter, and use some simple pomade daily. 2. The remedy depends on the nature of the throat ailment, and you do not specify this. Try what allowing a chlorate of potash lozenge to dissolve in the mouth now and then, will do.

C. S.—There is no need to be alarmed. Abstain from all exercise of the kind you name for a prolonged period; and, further, read and follow advice given to "Hypochondriac" in present issue of Health. Naturally, in your case, your mental worries may affect your bodily health; but with more open-air exercise, and with attention to rules prescribed above, you will completely recover.

Edinburgh.—[Don't (as you value health and purse) have any dealings with the person you name or any other quack. You will regret it if you do. He is an utterly unqualified person, whose aim is to make money out of his dupes.] You have simply been much frightened. There is no need to be morbid. What you complain of, you should bear in mind, is perfectly natural in healthy persons. Only quacks say otherwise. Be guided by us, and simply read and follow advice given to "Hypochondriac" in present number of Health. You will get quite well, as hundreds in your case have been relieved.

Future Husband.—1. Certainly not; no fear of such a contingency. In all probability there will be a greater number of applications than you imagine. 2. Read any good manual of physiology—"Cleland's Physiology" (published by Collins & Co., of Glasgow) will suit you. More advanced is "Kirke's Physiology," largely used in the medical schools.

Nell Harieto.—If your general health is good, we do not see that what you name should be against your entering as a nurse. The duties require, as you know, firmness and strength of body and of mind, as well as delicacy. If you will send name and address, we can procure for you a reliable medical opinion in London, Edinburgh, or Glasgow. Unless the palpitation arises from any organic disease, we do not see that it should debar your intentions.

Nemo.—See and follow advice to "Hypochondriac" in present number of Health. If not bettered by following the advice we indicate, send stamped, addressed envelope, and we will forward name of a competent London physician.

Hy M.—The prescription contains Extract of Damiana, a nerve tonic, and Extract of Coca. The mixture would be used for the purpose indicated by you. Send stamped addressed envelope, if you wish prescription returned. You will get the mixture prepared for you at Martindale's, 10, New Cavendish-street, London, or at Corbyn's, or Squire's, in London.

An Interested Reader.—You require to attend strictly to rest after meals for a full hour at least, and to see that the food is very light and readily digestible. Take Morson's Pepsine with the food, and avoid all stimulants. The Bonifacius Mineral Water should also be used by you for a time—say a glass of this water to be taken fully an hour before breakfast for a time. This will probably relieve your more urgent symptoms.

Norah.—See Health No. 65 (page 197), under "Personal Health," lotion for wrinkles. Use tepid water for washing the face, but avoid chills.

Saleen.—Try what a course of Thomson's Cod Liver Oil Cream (see our advertising pages) will do for you. You probably require some nourishing tonic of this kind. You might also benefit from taking fifteen drops *Fer Bravais* thrice daily between meals in water. The cod oil cream should be taken after meals. It is just possible, of course, that your age may have something to do with your growing thinner. For the rest, see reference given to "Norah" above. Glad to advise further. Food to be nourishing, of course. A little good claret at meals might aid you.

R. M.—Try the effect of taking each morning, for a time, half a bottle of Hessian Bitter Water as a mild but effective aperient. When you have overcome the constipation, and, indeed, at once, make fruits and vegetables part of your daily dietary. Let your food be very light; give up tea and coffee, for a time, at least, and try a Turkish bath occasionally.

Actor.—Try first of all the effect of rubbing Rowland's Macassar Oil (the red variety) well into the roots of the hair morning and night. Give this a fair trial. If unsuccessful, write again. See to your general health as well. If out of sorts, take the tonic recommended to "Hypochondriac," in present number of Health, for a time.

Rufus.—Climate on the whole healthy. Temperance, or rather abstinence, will be in your favour; and, as you are healthy in yourself, you need have no fear. Make yourself acquainted on going out with the seasonal variations, and adapt your clothing thereto.

Juno.—Very likely the hair-troubles you complain of are due to your dyspepsia. Attend to the latter complaint in the first instance. Food to be very light for a time—fish, light-boiled eggs, milk, light puddings, &c.; no tea or coffee, and rest to be strictly observed after meals; and a little of Morson's Pepsine to be taken with the food. Avoid suppers and stimulants. Follow out this advice for a time, and let us know how you are.

A. C. L.—We think you might try the effect, at present, of simply rubbing plain, pure Vaseline into the affected parts each night. Watch the effect, and let us hear how you progress. If unsuccessful, we shall be glad to recommend other treatment. In our opinion, you suffered from a parasitic (vegetable) disease of the

[*Continued on page* 400.

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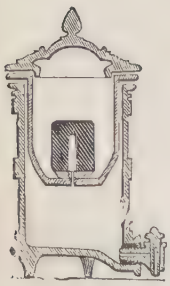

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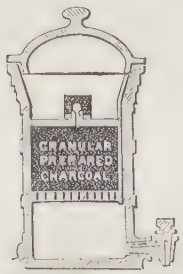

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hair; but we think, from your description, the disease has been arrested, and that you only now require simple nutritive treatment.

SEEKER.—If you mean to ask us whether any ointment can cure the long list of serious diseases set forth in the advertisement you enclose, we reply "Decidedly not." We observe cancer is included in the list of diseases said to be curable by the use of the ointment. Such a statement is simply a piece of the grossest quackery, and it is most regretable that anyone should be found capable of believing that a disease of such gravity can be cured by the use of any ointment whatever.

A MECHANIC.—Of the three modes, we approve of the first you name. The water used should be tepid, and a little Condy's Fluid should be added thereto by way of rendering the action more effective.

INFORMATION.—The preparation to which you allude is simply a saline aperient. Of this class of remedies we regard Lamplough's "Pyretic Saline" as superior to all others. No such remedy, however, is meant to be taken continuously, and this is unfortunately a mistake persons often commit. These remedies are aids to health, and, as such, are not required save when ailments appear.

GINX.—A pretentious quack; have no dealings with him.

A. GARDNER.—See article in No. 63 HEALTH.

B. J. O.—1. See advice to "E. H. Gawler" in HEALTH No. 74. 2. If well selected, may be used.

ATTENTION.—You have no symptoms of the ailment. You have simply frightened yourself into believing you are ill.

D. W.—Please try to bear in mind that what you complain of is often perfectly natural in healthy persons. You require no medicines now; simply attend to the cold bathing, and to avoidance of suppers and fluids late at night. Don't let your mind run on what you erroneously think is an ailment. Attend, of course, to your digestion, and try a dose of Æsculap or Hessian Bitter Water occasionally in the morning as a mild aperient, and continue a fruit and vegetable dietary. You need have no fears or qualms. You are essentially a healthy man. Don't take any pills or other drugs.

RUS.—Try soaking the thatch in tungstate of soda, which prevents the flaming out of muslins and other fabrics. Glad to hear the treatment agrees with you.

W. H. HANNAM.—Our advice to you is to undergo a thorough examination by, and obtain the opinion of, a reliable consulting physician. We can send you address of such on receipt of stamped addressed envelope. You would benefit, in our opinion, from a diet of fluids and little solids for a time—strong soups, fish soup, milk, eggs, &c., with light puddings, and so on. Continue the Pepsine.

BILES.—Have the ear thoroughly examined by a competent aural surgeon. Try what careful syringing will do. You do not give any particulars enabling us to judge of the probable cause of the deafness. A drop of glycerine should be placed in the ear at night preparatory to syringing in the morning.

CLARKE.—No; external applications are of no use in your case. Try taking Bonifacius or Æsculap Water occasionally in the mornings. Let your diet include fruit and vegetables, and see that you rest after food. Morson's Pepsine taken with the food should also do you good. Enfeebled digestion is largely, or solely, the cause of your troubles.

H. D. BARTON.—Our opinion is that Fellows' Syrup of the Hypophosphites is infinitely superior to all such preparations as you name. You cannot have free phosphorus given as a medicine.

C. J. S.—There can be no risk of infection, provided the ailment has been thoroughly exterminated. It is a pity you did not fully carry out the instructions of the specialist you consulted. Continue with the carbolated vaseline, and take as an internal tonic (which seems to do good in such cases) fifteen drops *Fer Bravais* thrice daily in water, between meals. Let us hear from you again, say, in three weeks' time, and then fully describe all your symptoms and progress.

O. H.—There is no cause for alarm. What you complain of is simply the result either of a little mental irritation (which your domestic arrangements may excite), or simply of robust health. Continue the cold sponging; avoid suppers and fluids late at night; and sleep on a hard mattress. See that your room is well ventilated. Is there any cause for the arrangements to which we have referred above?

LIEUT. R.A.—Wash the hair twice a week with tepid water in which a little Quillai bark has been dissolved to form a lather. Avoid the use of hard brushes and combs, which always increase scurf, and rub a little of Rowland's Macassar Oil well into the roots of the hair each morning. If this treatment does not suffice, write again.

W. JOHNSON.—Personal experience alone can and should decide the propriety of wetting the head in the morning bath. Personally, we never wet the head at all, and in an early number of HEALTH Mr. Mattieu Williams stated that he never was free from headaches after his morning bath till he *ceased* wetting his head. On the contrary, there may be others who find wetting the head secures them against headache. Judge and decide for yourself. It is a delusion to suppose that wetting the head is an absolute necessity. Dr. Wilson's "Manual of Health" will be published in a week or two at most.

ANTIQUARY.—No, we have not heard of the gentleman to whom you allude. All we can say is that if you wish a scientific application of electricity by a qualified physician of high standing, we shall be very glad to send name and address of such. We quite expected the "homœopathic electrician" would not stand the test of commonsense inquiry. He pleases only the "old women of both sexes" who like little bottles in cases served up with a superfluity of faith and mystical jugglery.

F. C. J.—1. Look to your teeth; brush them night and morning with camphorated chalk, and use Calvert's "Dento-Phenolene" (see our advertising pages) as a mouth-wash. 2. Avoid suppers, and take a little Æsculap or Bonifacius Water each morning (as a mild aperient) for a time. 3. Let your food be very light, and rest after your meals. Eat fruits and vegetables, and also try the effect of a little Pepsine taken with your food.

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Owing to the decease of Mr. J. L. Pulvermacher, Medical Galvanist, of 194, Regent-street, London, W., Mr. W. G. JOHNSON, who for 14 years was the Consulting Electrician and had the sole-management of the business, desires to intimate to patients desirous of adopting ELECTRICAL TREATMENT that he may now be CONSULTED DAILY at the Rooms of the

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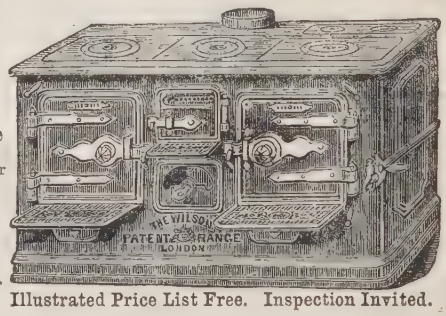

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"International Health Exhibition" Supplement to

HEALTH

A Weekly Journal of Domestic and Sanitary Science.

EDITED BY DR. ANDREW WILSON, F.R.S.E.

"Reason's whole pleasure—all the joys of sense—
Lie in three words, HEALTH, PEACE, and COMPETENCE."—*Pope.*

THE INTERNATIONAL HEALTH EXHIBITION.

THE first of what it is generally understood will be a series of international exhibitions was an attempt to teach the people of this country how best to utilise, and at the same time to preserve, one of the most abundant supplies of food which Nature has provided for the human race. The second of these exhibitions has for its object the diffusion of knowledge on a still more important point—viz., how to attain to and preserve that condition of mind and body in which alone life can be enjoyed to its fullest extent. In brief, the International Exhibition which was opened yesterday, Thursday, May 8, by his Royal Highness the Duke of Cambridge, is an attempt to bring before the English people all that science is doing or aims at in the direction of Hygienic and Sanitary Reform. With the exception of a few minor and tentative efforts of a similar description, this is the first great Exhibition of the kind that has ever been held; and the very fact that it should have been proposed at all affords striking evidence of the strides which have been made of late years in the paths of sanitary progress. The revival of public interest on the subject—a revival which, although it commenced in the beginning of the present century, made little or no progress for a long time—is a curious illustration of the truth of the well-worn maxim that "history repeats itself;" for the question, which to us is a comparatively new one, is really almost as old as the earth's records. Indeed, it is not too much to say that the long line of sanitary reformers whom the world has seen commenced with Moses, for the religious dispensation which the Patriarch founded contains provisions in regard to the health of the Jewish community which, for strictness, would compare favourably with many a modern code. The Greek and the Roman civilisations were not without their teachers of sanitary science, of whom Hippocrates and Celsus are the best known. The Greeks had their Temple of Health, which, though founded mainly for the prosecution of the science of medicine, embraced within its sphere of operations the advising of the citizens on many matters connected with the removal of the causes of disease; whilst the importance which the Romans attached to the public health is attested by the immense aqueducts which they constructed for the supply of water to their great cities—aqueducts which remain to this day, and which are still used in some parts of Italy for the purposes for which they were originally devised. But among the modern European nations the subject was, for centuries, strangely neglected. Pestilence after pestilence swept over the continent, and from time to time spread over this country, without any attempts being made to trace the scourge to its original source; and nations were content to trust either to their legitimate medical practitioners or to unprincipled quacks to cure disease when it broke out, and, when it had abated in ferocity, to congratulate themselves that Divine wrath had been appeased. France was the first country to make a move in the right direction, and in 1802 a Council of Health was established in Paris, which, with largely increased powers and vaster stores of knowledge upon which to shape its course, exists in what is practically the same form, to the present day. Other continental nations imitated with less thoroughness, the example of France; but England—generally backward, as a State in its encouragement of science, and its carrying out of her admonitions—was the last in the field. Even then it needed the cholera visitation of 1831 to wake up our Government to the necessity of doing something. A number of inquiries led to the passing in 1845 of the Nuisances Removal Act, which, however, was only a temporary measure; but which, owing to another outbreak three years later, was made permanent. The Towns' Improvement Act of 1847, and the Public Health Act of 1858, were only the precursors of further and more searching legislative interference in the interests of the national health, and in these days no subject is thought more worthy the consideration of Parliament than this. But side by side with this growth of activity on the part of our rulers was a quieter but much more important growth—the growth, namely, of a special class of scientists, who have made the laws regulating human health and physical well-being their special study. A list of the health-reformers of the past quarter of a century would embrace many names of world-wide celebrity—men whose researches, experiments, and suggestions, range over every detail of our daily life—who tell us what to eat and what to drink, how our houses should be built and drained, how we should clothe ourselves, and what form our amusements and recreations should take. Their labours are at last producing effect upon the public mind, but the bulk of the people are only just beginning to recognise the vast importance upon our national, as well as our private life, of hygienic and sanitary questions.

The time, therefore, is opportune for holding an International Health Exhibition, and when it was announced, at the close of last year, what was to be the character of the Fisheries' successor, everybody felt that the choice was a most admirable one. Nevertheless, there seemed to be a prevalent opinion that a "Sanitary Show," as it was contemptuously called by a few, would prove so little of an attraction to the general body of sightseers that the experiment would be a financial failure. The Fisheries Exhibition, it was argued, did a great deal of good, because it "took," and it "took" because it savoured of the sea, with which even the most inland-bred Briton likes to profess an interest and a sympathy. On the other hand, a Health Exhibition would not have this or any similar recommendation; it would not draw, and so its educational advantages would be reduced to a minimum. So argued the croakers. But, judging from the experience which the preliminary proceedings have afforded, the Health Exhibition will be, if possible, more popularly attractive than its predecessor, and will have a very great educational advantage; whilst the intending exhibitors, who, presumably, had an eye to their own interest, evidently formed a very high opinion upon

these two points from the time the project was first mooted. The formation of a General Committee was the first step, and a strongly representative body of gentlemen, some 400 in number, with his Royal Highness the Prince of Wales at its head, was gradually got together. From this an Executive Council was nominated by H.R.H., consisting of the following noblemen and gentlemen:—The Duke of Buckingham and Chandos (Chairman); Sir James Paget, Bart., F.R.S. (Vice-Chairman); Sir Frederick Abel, C.B., D.C.L, F.R.S.; Mr. Edward Birkbeck, M.P.; Mr. George Buchanan, M.D, F.R.S.; Sir Philip Cunliffe-Owen, K.C.M.G., C.B., C I.E.; Sir Joseph Fayrer, K.C.S.I., M.D., LL.D., F.R S.; The Right Hon. the Lord Mayor, M.P.; the Marquis of Hamilton; Captain Douglas Galton, C.B., D.C.L, F.R.S; Mr. Ernest Hart; Sir John Lubbock, Bart., M.P., F.R.S.; Mr. Samuel Morley, M.P.; Mr. G. V. Poore, M.D.; the Lord Reay; and Sir John Rose, Bart., G.C.M.G. Mr. Edward Cunliffe-Owen was appointed Secretary to the Executive Council, and shortly afterwards seventeen Sub-Committees were formed from the General Committee. These Sub-Committees took entire charge of their own special departments, which were arranged in the following order. Their enumeration alone shows most conclusively the comprehensive character of the Exhibition:—

Food: Division A, Animal and Vegetable Products; Division B, Chemistry and Physiology of Food; Division C, Cookery.—Dress. The Dwelling-house: Division A, Water Supply and Drainage; Division B, Construction and Fittings; Division C, Heating, Lighting, Ventilating, and Smoke Abatement.—Ambulance.—The Workshop.—School and Education.—Technical Education.—International Congress on Education.—Meteorological.—Library.—Laboratory.—London Water Supply.—India.

One of the most important matters in connection with an exhibition of this character, is the selection of the juries, with whom rests the awarding of the prizes, and in regard to this subject the most scrupulous care has been taken to meet the views of the Exhibitors themselves. The Prince of Wales, as President of the Exhibition, delegated to a Commission, selected from among the members of the Executive Council, the duty of making arrangements for the effective carrying out of the work of the International Juries. This Commission consists of:—Lord Reay (Chairman); Sir James Paget, Bart., F.R.S.; Sir Frederick Abel, C B., F.R.S., D.C.L.; Sir Philip Cunliffe-Owen, K.C.M.G., C B., C.I.E.; Dr. George Buchanan, F.R.S.; with Mr. H. Trueman Wood (Secretary of the Society of Arts); and Mr. Gilbert R. Redgrave, Assoc. Inst. C.E., Joint Secretaries. His Royal Highness further expressed his wish that the Exhibitors should themselves aid in the selection of Jurors, and in order to carry this suggestion into effect, the Exhibitors have been requested to enter, on a form provided for the purpose, the names of three gentlemen to be recommended as Jurors. From the list thus formed the Commission have made a selection, and have endeavoured to give full weight to the opinions expressed by Exhibitors. It is, therefore, confidently expected that the composition of the juries themselves and their awards will be satisfactory alike to the Exhibitors and public. The Executive Council and Sub-Committees, aided by a most competent and zealous staff of officers, at once set themselves in earnest to the work of preparation, and the result has been that the Exhibition was opened on the 8th inst. in a state of completeness probably unsurpassed in the history of previous undertakings of a like character. Commissioners representing America, the colonies, and most of the nations of Europe were speedily appointed by their respective Governments, and these bodies have done all in their power to assist in the preliminary arrangements. The Government having notified that, the Exhibition being an international one, the Exhibitors would participate in the privileges accorded by the Patents, Designs, and Trade Marks Act of 1883, and that the buildings were to be considered as bonded warehouses during the period of the Exhibition, help began to flow in from all quarters. So numerous were the applications for space that, had the Exhibition buildings been four times as large as they are, space would have been inadequate for their accommodation. Nor has more substantial help been denied. The City and Guild of the London Technical Institute took up the matter in an earnest spirit, and have voted sums amounting altogether to £7,280. The Society of Arts have offered eleven gold medals, or sums of £20 at the option of the recipients, in the classes relating to sanitary architectural construction, industrial hygiene, handicraft teaching in schools, lighting apparatus, food, and the application of gas to cookery and heating in dwellings. The Council of the Society have asked the juries in each class to recommend for their consideration either two or three exhibits which they may think deserving of a prize. Many other societies have also given assistance in offering collections of articles which will lend an interest to the Exhibition.

A word or two with regard to the *locus in quo* of the Exhibition may not be out of place, especially to that numerous class which, it may be confidently assumed, will be attracted to the metropolis this summer with the object of inspecting the Exhibition for themselves. South Kensington is a peculiarly appropriate locality for holding an exhibition of an educational nature, for the district may be said to be the home of the great educational movements in which the State takes a part. The Science and Art Department, the South Kensington Museum, the Natural History Museum, the Indian Museum, the National Portrait Gallery, the Albert Hall—all these are within a stone's throw, so to speak, of the main entrance to the Exhibition, and the attractions of some of them, at least, are to be incorporated into the Exhibition itself. Another great point in favour of the site is its extreme accessibility. The South Kensington station of the District Railway is within three minutes' walk of the main entrance in Exhibition-road, and, by means of the two connected underground railways of the metropolis, visitors arriving in London by any of the main lines are enabled to reach South Kensington with a minimum of trouble and expense. The District Railway Company have issued a map on which the position of the Exhibition is clearly shown, instructions being also given as to the routes and fares from all the principal railway termini to South Kensington. Omnibuses, too, run within a hundred yards of the doors to every part of London. Inside the Exhibition the most complete arrangements have been made for the comfort and amusement of visitors whose desire to be entertained is greater than their interest in sanitary and hygienic questions. Performances by military bands—in the gardens during fine weather, and under the noble roof of the Albert Hall when the elements are unpropitious—will be given every day, whilst the beautiful gardens of the Royal Horticultural Society are to be illuminated by electricity during the summer evenings on a scale of completeness excelling that attained last year when the Fisheries Exhibition brought so many thousands of sightseers to South Kensington. Nor have the Executive Committee been unmindful of the creature comforts of their guests, for whose provision arrangements of the most diverse character have been made. Elaborate *tables-d'hôte* for the wealthy, and cheap, substantial ordinaries for the less fastidious, will be provided. The whole range of food-supplies will be drawn upon. Frozen meat from New Zealand may be inspected and afterwards eaten; a vegetarian dinner, consisting of three courses, will be

supplied for sixpence by the Vegetarian Society of Manchester; Mrs. E. Clarke, the lady superintendent of the National School of Cookery, has arranged for sixpenny dinners, consisting, on alternate days, of fish and flesh food, and will give free lessons in the culinary art every day in one of the theatres, besides publishing a threepenny book, entitled "Recipes for Cheap Dinners, as served in the International Health Exhibition"; and a tea *à la chinoise* will be served by real Celestials in a real Chinese tea-house in the section of the building set apart for exhibitions from the Kingdom of the Lord of the Sun. Eating and instruction, in fact, are combined, and if any visitor goes away hungry, it will be his own fault; whilst, if he leaves without having learned something regarding the properties and preparation of all kinds of food, he will be either a very wise or a very unobservant personage.

Whilst on the subject of the extra attractions, so to speak, of the Exhibition, one or two other objects of interest may be noticed. The Royal Pavilion, which is sure to be thronged with sightseers, is in the same position as it occupied last year—*i.e.*, to the left of the main transept; but the decorations, although entrusted to the same firm (Messrs. Gillow & Co.) are of an entirely different character. The entrance is Egyptian in design, and leads to the dining-room, where the highly ornate white and gold decorations are in the style of Louis Quatorze. Opening out from the dining-room is the smoking temple, an apartment of Grecian type, lighted from above, and the roof supported by fluted columns. A new exit has been provided, which leads through a short gallery containing plants and flowers into the gardens. The floors of the pavilion are of parquet, and in the entire arrangement regard has been had to the special purposes of the Exhibition. The apartments of the courteous Literary Superintendent of the Exhibition, Mr. A. P. Trendall, where accommodation is also provided for the members of the Press, has also been furnished by Messrs. Gillow & Co. Like the Fisheries, the Health Exhibition is lighted entirely by electricity, the only difference being that the arrangements are on a much larger and more complete scale this year than they were last. The supply of engines and boilers necessary for working the vast system of electric lighting throughout the whole area of the Exhibition has been provided by Messrs. Davey, Paxman, & Co., of Colchester. The engines are of splendid construction, and their power is greater than has ever before been employed for a similar purpose, and much larger than that supplied so successfully by the same firm last year. Six steam engines have been provided, the two largest being capable of developing 750 horse-power. A nest of six large coupled boilers of the locomotive type for supplying them with steam, has been fitted. They are fixed between the two large coupled engines, and are made to work at 100 lb. steam-pressure; two smaller boilers supply steam for a large compound engine, while the remainder of the boilers are of the same kind but attached to the engines. Altogether nearly 1,300 indicated horse-power is provided for. The number of electric-light exhibitors is twenty-two, and they include every well-known system, both of arc and incandescent lamps. The approximate number of lights affixed in the various parts of the building and grounds is 5,000 incandescent and nearly 350 arc lamps.

In subsequent numbers of this weekly Supplement to Health (which will be issued *gratis* with each number of the journal) we intend giving detailed accounts of most of the exhibits of interest; but a general idea of the Exhibition as a whole will form a fitting conclusion to this introductory notice. There are considerably over one thousand exhibitors from Great Britain alone, whilst the foreign exhibitors bring up the total to about two thousand. On entering the great hall, the first object that strikes the eye is a fine equestrian statue of the President of the General Committee, H.R.H. the Prince of Wales, by Boehm. Descending a broad flight of steps, the main transept stretches away to the other extremity of the Exhibition ground, whilst right and left are the galleries, the foreign courts, and, further on, the gardens.

The object of the Exhibition, as stated by the Executive Committee itself, is to illustrate, as vividly and in as practical a manner as possible, food, dress, the dwelling, the school, and the workshop, as affecting the conditions of healthful life, and also to bring into public notice the most recent appliances for elementary school teaching and instruction in applied science, art, and handicrafts. The influence of modern sanitary knowledge and intellectual progress upon the welfare of the people of all classes and all nations is thus practically demonstrated, and the most valuable and recent advances which have been attained in these important subjects is displayed. The Exhibition is divided into two main sections—health and education, and is further sub-divided into eight principal groups.

The first group includes twelve classes, all of which relate to the production and preparation of food, and is intended specially to illustrate the food resources of the world and the best and most economical methods of utilising them. In the first three classes are included what may be termed the raw materials of food. When possible, specimens of the actual foods themselves are given; but where, from the perishable nature of the articles this is impossible, they are represented by models. It is more than probable, however, that periodical markets will be held at which fruit, vegetables, &c., will be shown and sold to the public. Class IV. includes every sort of drink, including milk; and Class V. consists of foods for infants and invalids, and "essences" and "concentrations" of all kinds. Class VI. has reference to the practical part of cookery, and under this head will come all those culinary arrangements to which we have before referred. One entire building is occupied by the bakeries, which constitute an important feature of this class, gas-engines being used in every case where machinery is required. The object of Classes VII. and VIII. is to diffuse popular information as to the nature, constituents, uses, and adulterations of food, and in these classes the Science and Art Department has lent valuable aid. Class IX. has reference to army and navy rations, prison and workhouse diet, and foreign dietaries. Under the latter head are some most interesting specimens of the food, beverages, &c., used by savages and native races of low civilisation. Class X. consists of the literature of food, whilst the last two sections are devoted to the exhibition of apparatus for conserving, storing, conveying, and distributing all kinds of fresh food, and the machinery and appliances used for this purpose. Here are to be seen methods of cold storage and transport of fresh meat, ice-making, dairy operations, the preservation of food, the manufacture of confectionery, and the production and bottling of aërated waters. For the purposes of this portion of the Exhibition over a hundred tons of metal in the form of engines, boilers, shafts, &c., have been received in the building, and have been erected in a spacious, separate building. This part of the work has been undertaken by Messrs. Galloway & Co., of Manchester.

In the group devoted to articles of dress is to be found perhaps the most interesting collection ever brought together. It consists of some seventy figures arranged in groups of four, and showing the whole history of costume, not only amongst the upper, but also amongst the lower, classes of society, from the time of William the Conqueror down to the close of the reign of George III., the most

recent costume bearing the date 1807. The dresses are made from designs furnished by the Hon. Louis Wingfield, and taken from authentic drawings. Every detail of costume is represented with the greatest possible accuracy. This exhibition, which is perfectly unique in its character, not only shows the evolution of dress, but will enable comparisons to be made between dress in its hygienic relations in ancient and in modern times. There is also a series of figures showing the changes in the military costumes of this country, which will be of great interest in connection with modern improvements in the hygienic character of military uniforms, the arrangement of accoutrements, &c. The history of the English naval uniform is also exhibited in the same way. In these groups, also, there is a collection of ancient articles of attire and armoury from the Tower of London, and a selection from Lady Brassey's collection, with the object of showing costumes worn in extreme climates. This "history of costumes" is produced, to adopt the language of the stage, at a cost of about £1,200. A special class has been added to this group at the suggestion of the sub-committee, with the intention of displaying a number of illustrative specimens to show the comparative value of different dress fabrics, with reference to their "warmth," their hygroscopic properties, the influence of the colour of materials in modifying the effects of sun-heat, and the like.

The groups devoted to the exhibition of appliances of the water-supply, drainage, ventilation, construction, and fittings of dwelling-houses are most complete and interesting both to the scientist and mechanician and to the ordinary visitor. In order to show the progress that has been made with these subjects, Mr. George H. Birch, A.R.I.B.A., has designed and constructed a London street as it existed a couple of centuries ago. It was originally intended that Old Cheapside should be represented; but this was found to be impossible, owing to the fact that no authentic materials exist for a faithful reproduction of the famous City thoroughfare. The street, therefore, is a quaint and picturesque collection of houses such as our forefathers lived in, every one of the buildings being an accurate copy of dwellings which have actually stood in the City until comparatively recent times, or of which reliable descriptions are obtainable. This "revival" will be not the least interesting feature in the Exhibition. Another instructive exhibit in this class is a couple of models—one of a sanitary and the other of an unsanitary class, but of the distinguishing characteristics of the two we shall have a few words to say later on. In this class also are contained exhibitions of the electric light as applied to domestic purposes, and a series of models illustrating the sanitary arrangements of the City of Paris.

The second great branch of the Exhibition, which deals with educational matters, is crowded with an interesting collection, including models of school buildings, showing, particularly, their sanitary arrangements, specimens of appliances for promoting the health of the scholars by physical exercises, books dealing with every phase of the educational question, specimens of handicraft and technical work done both in English and foreign schools, and exhibitions explaining the mode and instruction adopted with blind persons and deaf mutes.

Another most interesting group is the miscellaneous collection of articles gathered together under the head of "Ambulance," and which comprises almost all the appliances used by civilised nations on the battlefield for the relief of the wounded.

The department called "The Workshop" is filled with models showing how the sanitary condition of workshops may be improved, and accidents prevented.

A meteorological department, and a library and reading-room are amongst the other conveniences which the student of laws of health has had placed at his disposal by the Executive Committee.

The important subject of the London water-supply has also not been neglected. The methods of filtration and distribution adopted in various parts of London are illustrated, and the eight companies have, in response to the request by the Prince of Wales, taken up the matter with great earnestness, and have worked willingly with the sub-committee which was formed under the presidency of Sir Francis Bolton.

A word must be said in conclusion about the excellent laboratories which have been formed in the Exhibition. The first is a laboratory for biological research, and is under the charge of Mr. Watson Cheyne and an assistant. It is divided into a large room—the Laboratory proper—and three small ones, two for incubators, &c., and one for cleansing purposes. The exhibit includes all the instruments, materials, and methods (short of the actual inoculation of animals) employed in the investigation of the bacteria and fungi associated with the zymotic diseases of man, animals, and plants, and the methods of testing the power of disinfectants is, within the same limits, also shown. In more detail there are exhibited :—The materials and processes employed in preparing sterilised cultivating media; cultivations of various micro-organisms, especially those associated with disease; modes of demonstrating bacteria by staining, &c.; modes of investigating bacteria in air, water, and soil, and of isolating and studying the organisms found; methods for testing the power of chemical agents in destroying bacteria, with illustrations; photographs of the various micro-organisms; micro-photographic apparatus; microtomes, microscopes, incubators, purifying chambers, &c. Demonstrations are to be given from time to time, at which several of the matters mentioned above will be illustrated, such as the forms of various micro-organisms—cultivations of some organisms to show their modes of growth—methods of preparing sterilised cultivating materials, and of carrying out a series of pure cultivations—methods of examining air, earth, and water for bacteria. The second is a hygienic laboratory, and has been placed under the superintendence of Prof. Corfield and an assistant. It contains a collection of all the apparatus necessary for the physical, chemical, and microscopical examination of water, air, soils, foods, disinfectants, &c., and also for the examination of sanitary appliances. During the period of the Exhibition, several illustrations will be given, including the microscopical examination of water sediments; chemical examination of mineral and of organic matters in suspension and solution in water; growth of organisms in gelatine and sugar solutions; testing the value of filters; methods for estimation of the carbonic acid in air, including the "household test"; detection of other gaseous impurities; chemical and microscopical examination of the organic matter in air; mechanical, chemical, and microscopical examination of soils; chemical and microscopical examination of various articles of food and drink; detection of adulteration; examination of "disinfectants," wall-papers, and articles of clothing; experiments illustrating the movements of air in pipes, &c., and its passage through various materials; methods for testing the soundness of drain-pipes and soil-pipes; the efficiency of traps and other apparatus; and many other experiments connected with hygiene.

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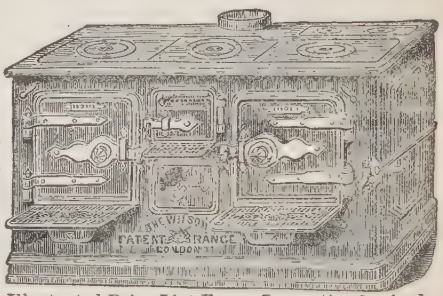

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Lie in three words, HEALTH, PEACE, and COMPETENCE."—*Pope.*

THE INTERNATIONAL HEALTH EXHIBITION.

SECOND NOTICE.

By general consent, the opening ceremony on Thursday week was thoroughly successful. No doubt, as a spectacle, it was tame as compared with the splendour of a full Court ceremonial; but the Duke of Albany's death prevented in this case, as on many other public occasions of late, the presence of the Prince of Wales, who, as President of the General Council, would otherwise have been the central figure in the proceedings of the 8th inst. Everybody was surprised at the amount of completeness which had been attained in all those departments which were under the immediate control of the Exhibition officials. Some of the Foreign Courts were in a backward condition; but almost all the rest of the building was in a satisfactorily advanced state, whilst one or two of the courts had the appearance of having been opened to the public for a month past. What was most surprising was the promptitude with which all this had been accomplished. Those who were privileged to be present late on Wednesday night, witnessed nothing but a chaotic mass of unpacked exhibits, unbuilt stands and show-cases, dirt, and lumber, out of which hundreds of men were, as it seemed, vainly endeavouring to produce something like orderly arrangement. But at 10 o'clock on the following morning when, at the invitation of the Executive Committee, the representatives of the Metropolitan and British and Foreign Press met at a breakfast, presided over by the Duke of Buckingham and Chandos, order had taken the place of disorder, and confusion had given way to regularity and precision. After breakfast the visitors were conducted over the building by Mr. Trendall, the literary superintendent. The model dairies were first visited, then the great popular feature of the Exhibition—the old London street—was inspected, the dress, sanitary, and furniture departments were gone through, and an opportunity was afforded of seeing what has been done since last year for the beautification of the gardens. By this time the hour for the opening ceremony had arrived, and with it the Duke of Cambridge and his suite. They were received at the main entrance by the Duke of Buckingham, who was surrounded by a throng of well-known personages, and a procession was formed which wended its way between crowded lines of cheering spectators in the South Gallery as far as the Dairy Court, and passed by way of the electric light shed to the old London street. Here the Royal party was saluted with a fanfarronade by the City trumpeters, while the Criterion Handbell Ringers stationed in the old church tower rang a merry peal. Viewed from the Royal Pavilion, the scene, as the procession passed through the "old street" towards the Bishop's-gate, afforded perhaps, the most picturesque or artistic feature in the day's programme; but "morning dress" was somewhat out of harmony with the sixteenth-century surroundings, the scarlet robes and gold chains of the civic functionaries alone contributing the needed element of colour. Having glanced for a moment into the Pavilion, the Royal party took its way through the Central Avenue to the Central Gallery or transept, in the centre of which a daïs had been provided for the opening ceremony.

The Duke having taken his seat, and the principal personages having grouped themselves around him, the Duke of Buckingham and Chandos came forward, and announced, amid great cheering, the receipt of a telegram from the Prince of Wales, couched in the following terms: "I wish the Exhibition opened to-day all possible success, and deeply regret my unavoidable absence." His grace then read an address to his Royal Highness, in which the origin and scope of the exhibition were set forth in considerable detail, and in conclusion an earnest hope was expressed that the labours which had been bestowed, and the expenditure which had been incurred, upon the Exhibition, would secure for its objects more intelligent attention in the future, and that the event of that day would prove to be the inauguration of an enterprise which would make its mark in the records of the social and domestic condition of the nation. The Duke of Cambridge, in a written reply, testified to the willingness with which he had consented to perform this ceremony, paid a graceful compliment to the Corporation and other public bodies which had assisted the Executive Committee, and expressed his best wishes for the success of the Exhibition. Subsequently the procession was reformed, and made its way, with some difficulty, to the Belgian Department, where the Foreign Commissioners were introduced to his Royal Highness, who afterwards left by the Queen's-gate entrance. In the evening the first concert in the Albert Hall took place. Mesdames Ambler and Patey, and Messrs. Foli and Vernon Rigby were the vocalists. The united bands of the Grenadier and Coldstream Guards performed a selection of classical and operatic music. If one may judge from the experience afforded by the first three days, the new exhibition will greatly surpass its predecessor in popularity. The official record places the number of visitors during Thursday, Friday, and Saturday at 29,032.

Having briefly described the opening ceremony, it is now our duty to comment upon the Exhibits themselves, taking them in the order in which they appear in the official catalogue.

DIVISION I.—HEALTH.

GROUP I.—FOOD.

CLASS I. (Selected Displays of Unprepared Animal and Vegetable Substances used as Food in various countries, stuffed specimens of animals, birds, &c., models, drawings and illustrations of same).—In this class most of the great seed-growing firms are exhibitors—Messrs. Sutton & Sons, Reading (8); Messrs. James Carter & Co., High Holborn (15); and Messrs. E. Webb & Sons, Stourbridge (1)—being specially noticeable by the extensive character of their displays and the tastefulness of their arrangement. Messrs. J. C. Wheeler & Son, of Gloucester (7), have a large case containing two collections of seeds—one producing food for

man and the other yielding food for animals—consisting of about 300 of the most approved species and varieties in cultivation. There are several exhibits of stuffed animals and birds in this class, the most noticeable being two (9 and 13) sent by Messrs. Ward, Rowland, & Co., Piccadilly. One contains specimens of edible birds and animals, and the other consists of a reproduction of a poultry-yard, every variety of domestic fowl being represented. Mr. Geo. Butt, F.Z.S., Wigmore-street (11), sends an interesting exhibit of the same class—the stuffed skin of the celebrated prize heifer, "Cherry Blossom," the property of her Majesty the Queen. Mr. D. Tallerman, 84, Upper Thames-street (5), will attract to his stand everybody who has to put into practice the theories of domestic economy. Mr. Tallerman is an American and Australian meat agent, and sells (but not at the exhibition) Australian and South American and New Zealand mutton, and American and Russian beef at prices very much less than those we are in the habit of paying in London. Messrs. Carwardine & Co., 84, City-road, exhibit (10) the various produce of wheat and other cereals, and call attention to the importance of the home manufacture of bread wherever it is practicable. Mr. R. D. Farnworth, Liverpool, also shows (16) specimens of his flour, known as the "Morning Star" brand. Messrs. Sabine & Richardson, Dunston House, Mincing-lane, have a very tastefully-arranged stall (12) for the display of Indian teas and coffees, specimens of various plants and seeds illustrating the process of cultivation and manufacture, and models and drawings of the several steps through which the tea has to pass before it reaches the consumer. Indian teas, as official returns show, are growing in favour in England—a fact which all who have the interest of that empire at heart will learn with pleasure.

Class II. (Prepared Vegetable Substances used as Food, including tinned, compressed, and preserved fruits and vegetables; bread, cakes, and biscuits; and tobacco).—There are some seventy odd exhibits in this class, and they are of an all-embracing description. Most of the leading tobacco manufacturing firms, many of the well-known biscuit manufacturers, and importers of American and Australian tinned meats are represented. Mr. W. Phillips, of Andover, Hants, sends (19) specimens of Maté or Paraguay tea, with the Maté cup and bambilla—curious instruments used by the natives of South America, in the days of their barbarism, for retaining the full flavour of the leaf. Messrs. King, Frederick, & Co., 6, Bishopsgate-avenue, are the exhibitors (30) of Edwards' Preserved Potato and Edwards' Desiccated Soup. The former has been largely used in the Royal Navy and on emigrant ships, and formed one of the principal articles of diet of the late Arctic expedition. The inventor points out that whereas with fresh vegetables a large proportion of the valuable mineral salts and acids are left in the water used in boiling them, and whereas, during at least one half of the year fresh potatoes are very inferior, his process retains the valuable properties of the roots, which are preserved direct from the fields when at their best condition The "desiccated soup" is a preparation of beef and vegetables in a similar form to the preserved potato, and has been placed on the Board of Trade list of medical stores and necessities for merchant ships. There are several exhibits of flour by well-known milling firms, including Messrs. Mumford & Co. (21), Messrs. Carwardine & Co. (10), and Jones, Orlando, & Co. (26). Messrs. Turner, Bethnal-green, have a case (25) filled with specimens of their preparations of maize, hominy, and malt-flour, and a model of Tomkins, Courage, & Cracknell's kiln used in their preparation. By an arrangement of small flues, the smoke is carried under the floors of the kiln, and escapes at the corners of the roof—a device which prevents any of the products of combustion coming into contact with the material being dried. The Scotch millers are well to the fore, among them A. & R. Grant, York-street, Glasgow (35), whose *spécialité* is Midlothian oat-flour, a preparation from Midlothian oats, in which is concentrated in a high degree the flesh-and-bone producing properties of the meal. Mr. Andrew Aikman, Edinburgh, is also an exhibitor (29) of Midlothian oatmeal preparations. Mr. John Grant, Craig Mills, Dundee, shows (31) Scotch oatmeal and barley preparations. His mills at Strathmartine were destroyed by fire two years ago, and have since been re-erected, with all the latest mechanical improvements. There is one feature in which these mills differ structurally from nearly all others of the same description. Usually the meal is sifted and finished on the basement flat, where all the refuse of the mill is also collected; but by using an additional elevator Mr. Grant carries the meal from the grinding-stones to the top-flat, far away from all the offal and dust, so that it may be finally sifted in an atmosphere free from all impurities. To preserve the meal from atmospheric influences, it is securely packed in sealed tin cases when sent abroad. Messrs. Brown & Polson, Paisley, have an attractive stall (37), where the well-known preparations of the firm are temptingly displayed.

Mr. W. H. Ussher, Bath, brings under the notice of visitors (27), his banana flour, and biscuits, bread, and cakes made therefrom. The nutritive properties of the fruit of the *Musa sapientum* have been described in terms of the highest praise by Von Humboldt and other naturalists. This banana flour is the result of a long series of experiments on the part of Mr. Ussher, and analysis proves it to contain more nitrogenous matter and less starch than arrowroot, tapioca, &c. There are two exhibitors—Mr. James Forth, Bath (39), and Bryant Brothers, Bath (73), —who are makers of the well-known Bath Oliver biscuit. As both claim to be the *only* makers, it is hard for the uninitiated to decide which to place first in order of seniority, for it is certain that the biscuits are exhibited on both stands. As to the history of the biscuit, however, there can be no doubt. In 1735 Dr. Oliver, the physician to the Bath Mineral Water Hospital, invented the biscuit, and shortly afterwards made his coachman a present of the recipe, together with five sacks of flour, and from this humble beginning the recipient soon acquired a fortune. It is said to be the only fermented biscuit made, and is recommended to persons suffering from acidity on the stomach. Almost all the large jam-making houses are represented in this class, but their manufactures are too well known to need description; the same, too, may be said of the firms whose efforts are directed to the production of baking and other like powders, and of pickles and condiments. Mr. G. Van Abbott, Princess-street, Cavendish-square (69), is the English agent for the Murdock Liquid Food Company, of Boston, Mass., which proclaims itself as the only manufacturer of raw food extracts in the world. Their liquid food is a raw extract of beef, mutton, and fruits, condensed manifold, and, being free from insoluble matter, promotes nutrition without the labour of digestion. It appears from a characteristic handbook issued by the firm, that, with a true American appreciation of the value of advertising, it has founded in Boston a free hospital for diseased and orphan infants, and for women with chronic diseases. This novel method of providing a *corpus vile* on which to experiment with their preparations has, it is stated, produced good results. We are indebted to an American journalist for the information that "Babies ten days old, being the youngest yet received

(in the hospital), on arrival will drink from a china moustache coffee-cup one-half cup of prepared Liquid Food, served at blood heat, showing that their instincts are as strong as that (*sic*) we see in animals, for we all know that a cow prefers clover to an oyster-stew. It is a fact that infants, after taking this food, will not take any other until Liquid Food is added to it, while their rapid growth in flesh and strength proves that making new blood makes new life." Some leading confectioners have stands in this part of the Exhibition—notably Messrs. Bolland, of Chester (75), who display an enormous wedding-cake. Baron Liebig calls attention (80) to his cocoa, chocolate, and perfected food for the nursery, and a preparation for invalids and dyspeptics called Malto-Legumine. One of the many varieties of compressed foods is that shown by Messrs. C. Prevel & Co., Fenchurch Street (78). Their compressed mixed vegetables seem to be particularly suited for the camp and the sea, for it is stated that one cubic mètre of the compressed food is sufficient for a mess of forty thousand men. The firm also exhibit a similar article, uncompressed, and intended for home consumption and for use on short cruises. The Vegetarian Society are represented in this class by a stand (89), but their display is of a more effective sort in another quarter of the building, where it consists of the provision of sixpenny dinners and other refreshments in which neither fish, flesh nor fowl find a place. Many people who are not vegetarians will be inclined to patronise their restaurant when they learn that the whole of the profits will be devoted to the feeding of the poor of London and other large towns during the winter of 1884-5. In the same connection, we may also mention the stall of the Bread Reform League (90). The object of the League is to teach the dietetic advantages of wheat-meal and wheat-meal bread as compared with that generally used. For this purpose it displays whole-meal bread and biscuits, manufactured by different bakers, including the Aërated Bread Co., Messrs. Hill & Son, and Messrs. Kings' Bread and Biscuit Co.; and whole-meal from the mills of Messrs. Hutchinson, Liverpool; Messrs. Orlando, Jones, & Co., Wandsworth; and Messrs. George Pimm & Co., Wandsworth. It is worth while pointing out, in the interests of a very useful body, that the League is a purely uncommercial institution, and that, having no paid officers, all its funds are entirely spent in promoting the reform it advocates.

Class III. (Prepared Animal Substances Used as a Food in a Preserved Form). This class includes tinned, smoked, salted, compressed, and prepared animal foods of all kinds, and food produced by insects, such as honey, &c. The majority of exhibits, which are numerous and varied, includes most of the articles ordinarily sold by cheesemongers and grocers, and to these no further reference need be made. Messrs. F. W. Berk & Co., Fenchurch-avenue (94) are the consignors for the United Kingdom of "Kemmerich's Extract of Meat" and "Bouillon Kemmerich," prepared by E. Kemmerich & Co., at Santa Elena, South America. The extract is found upon analysis to contain, on the average, 61 per cent. of the nitrogenous principles of meat, 20 per cent of the phosphate saline constituents, and 19 per cent. moisture, and is distinguished from similar preparations by its largely containing azote with only a small proportion of fat. The "Bouillon Kemmerich" is a strongly-concentrated beef-tea. Messrs. Grindly & Co., Bishopsgate-avenue (109), have a very complete show both of the commoner and the less-known kinds of isinglass. Messrs. T. Christy & Co., Fenchurch-street, exhibit (98) an interesting collection of seeds, plants, and drugs new to commerce or science. These include pemmican, specially prepared by Dr. Bancroft, of Brisbane, and as to which it is asserted that one pound of pemmican contains the nutritive properties of four pounds of beef; Maté tea, the national beverage of Paraguay; cocoa (*Erythroxylon Coca*), the leaves of which produce a delicious liqueur, and contain nutritive properties of a most valuable nature; Cola or Kolah (*Sterculia acuminata*), a nut in great request amongst all negro nations, who chew it for its sustaining qualities, used by negroes as a restorative from the effects of alcohol, and recommended here as a cure for dipsomania; a specimen of the Maragogipe coffee, which is growing so much in favour that the Brazilian coffee-planters are said to be cutting down their old plantations in order to make room for this new variety; and several classes of cinchona.

But the most interesting exhibit in this class is, undoubtedly, that of the British Beekeepers' Association, to which some of the best-known apiarians have contributed. Messrs. Neighbour & Sons, 149, Regent-street, send comb-honey, bottled honey, modern frame and straw hives, and every article of modern beekeeping, together with a pictorial representation of their bee-farm at Hemel Hempstead, Herts. The other exhibitors include Mr. J. Baldwin, Ashley, Kent; Mr. T. B. Blow, Welwyn, Herts; Mr. I. Thom, Ashwell, Herts; and Mr. R. R. Godfrey, Grantham. Three large hives, containing each a considerable colony of these proverbially industrious insects, are placed near the southern wall of the annexe in which the Association is located, and small tunnels leading from the backs of the hives into the open air afford the bees a means of pursuing their honey-making avocations. The British Bee-keepers' Association is doing good work in spreading among the rural populations the advantages of bee culture as a source of income, and the constantly-increasing home-supply of honey is an evidence of the success which has attended its labours.

Class IV. (Beverages of all kinds, Alcoholic, Non-alcoholic, and Infusions of Tea, Coffee, and Cocoa). The tea and coffee makers are in force in this class, every known growth of these two popular beverages being represented. De Rogas Brothers & Co., Basinghall-street (118,) exhibit Caracas coffee and Caracas bitters, and Mr. Frederick Allen, Upper Thames-street (119), in addition to other varieties of tea, offers, in a liquid form, a blend known as Hand's afternoon tea, which seems to be largely in request among the visitors to the Exhibition. The Australian Wine Company, Hanover-square (120), show varieties of Red and White Australian wines and beverages, which, by-the-way, are rapidly growing in public favour; while Messrs. Burgoyne & Co., Old Broad-street, also show (124), a goodly selection of the same vintages. A monster cask, reminding one of the great barrel of Heidelberg, attracts attention to the stand (122) occupied by the Austro-Bavarian Lager Beer Brewery and Crystal Ice Factory, Tottenham. This new drink is proving so formidable a rival to the beverage which has been so long associated with the name of Englishman, that a word or two as to its manufacture may probably be interesting. The German import trade has already assumed very large dimensions, but the Tottenham Brewery, worked by a German Colony, is attempting, with considerable promise of success, to meet the English consumption by a home manufacture. The company exhibit here their four different brews—Pilsener, lager, Munich, and bock beer. The peculiar flavour of this drink is produced by a lagering, or storing of the liquor in ice cellars for three or four months after the principal fermentation is completed. Another very attractive stand (125) is that of the Administration of the Weinlaube, whose principal place of business is at Klosterneuberg, near Vienna. Samples of Austrian and Dalmatian wines are exhibited in a "Weinlaube" or arbour, such as are to be

found in all Austrian vineyards; and a peasant girl, attired in the Dalmatian national costume, is in attendance on visitors. Models are shown of the latest wine-making appliances as used in the Imperial and Royal Oenological College at Klosterneuberg, together with drawings representing the ravages of the Phylloxera, and specimens of the *Phylloxera vestatrix*, the terrible vine-parasite, in alcohol. The same class includes also exhibits from all the well-known breweries, the Irish and Scotch distilleries, and the aërated and mineral water manufacturers.

The Council of the Society of Arts announces that it is prepared to award the following prizes in connection with the International Health Exhibition in London :—

Under the John Stock Trust, a Society's gold medal or £20, for the best example of sanitary architectural construction, classes 20, 28, 29, 30, 32.

Under the Shaw Trust, a Society's gold medal or £20, for the most deserving exhibit in classes 41, 42, 43 and 45 (relating to Industrial Hygiene).

Under the North London Exhibition Trust, a Society's gold medal or £20, for the best set of specimens illustrating the handicraft teaching in any school, classes 49 and 50.

Under the Fothergill Trust, two gold medals (or two sums of £20), one for the best exhibit in Class 27 (fire-prevention apparatus), and one for the best exhibit in Class 26 (lighting apparatus.)

From the Trevelyan Prize Fund, five gold medals (or five sums of £20), for the best exhibit in each of the following classes :—2, 3, 6, 7, and 11 (all comprised within Group I., "Food").

Each prize will be a gold medal, or the sum of £20, at the option of the recipient.

The Council proposes to ask the juries in each class to recommend for consideration either two or three exhibits which they might consider deserving a prize.

Scientific Generosity.—Mr. Andrew Carnegie, a wealthy ironmaster in the United States, but a native of Scotland, and the author of the well known "American Four-in-Hand in England," has given 50,000 dols. to the Bellevue Hospital Medical School, to encourage medical discovery, especially in connection with the germ-theory, with a view to the prevention of disease. This is, indeed, an instance of enlightened generosity.

Indelible Stamping Ink.—E. Johanson, of St. Petersburg, gives the following formula for a convenient ink for marking clothing by means of a stamp :—Twenty-two parts of carbonate of soda are dissolved in eighty-five parts of glycerine, and triturated with twenty parts of gum arabic. In a small flask are dissolved eleven parts of nitrate of silver in twenty parts of officinal water of ammonia. The two solutions are then mixed, and heated to boiling. After the liquid has acquired a dark colour, ten parts of Venetian turpentine are stirred into it. The quantity of glycerine may be varied to suit the size of the letters. After stamping, expose to the sun or apply a hot iron.

Subsoil Drainage by the Blue Gum Tree.—A curious instance of the power of the *Eucalyptus globulus*, or Blue Gum tree, to drain wide areas, and of the distance to which its root will penetrate, is afforded by a story which comes from Alameda county. The owner of Bay Island Farm recently found a curious root-formation of the eucalyptus in the bottom of his well, about 16 ft. below the surface. The trees to which the roots belonged stood 50 ft. from the well. Two shoots pierced through the brick wall of the well, and sending off millions of fibres, formed a dense mat that completely covered the bottom of the well. Most of these fibres were no larger than threads, and were so woven and intertwisted as to form a mat as impenetrable and strong as though regularly woven in a loom. The mat when first taken out of the well was water-soaked and covered with mud, and nearly that all a man could lift; but when dry it was nearly as soft to touch as wool, and weighed only a few ounces.

Foul Air and Consumption.—In a report on the health of Preston, Dr. Pilkington, Medical Officer of Health, says of the connection between consumption among operatives and their manner of living, that "the sudden change from the warm and often moist air of the mills to the colder atmosphere of the outside is undoubtedly one cause of tubercular disease of the lungs; but a more dangerous enemy may often be found in the houses and in the habits of the operatives. Where the family is a large one, it is not uncommon to find three, four, and even more of the members occupying one small bedroom, the windows of which are seldom opened, and the chimney too often permanently blocked up. The vitiated air thus engendered is above all things the most likely to produce the first seeds of consumption, especially in growing children. For this great injury to the health of the rising generation, parents plead as an excuse that they are unwilling to break up and divide the family; that they have lived many years in the same house, and that they were themselves brought up in the same way."

London Water Supply.—Perhaps the most simple and effective way of showing the relative position of the average London householder, as compared with householders in other cities, is to take as an illustration a small dwelling-house at a rental of £40 (192 dols.) a year, with a bath and water-closet. For such a house the water-rent in London ranges from 10·50 dols. to 14·25 dols., according to the district it is situated in; and for one of these sums the tenant gets for one year an intermittent supply of water pumped from the Thames. For a similar house in Glasgow the annual charge is 6·04 dols.; in Liverpool (city) or Manchester, 8·06 dols.; and in the suburbs of Liverpool, 6 dols.; but in these three cities the inhabitants have a supply of unpolluted water constantly laid on at high pressure. Another view of the matter is to compare the total amount collected for water-works purposes with the total population. Thus, we find that for every one hundred thousand inhabitants within the metropolitan area the water revenue is 168,000 dols.; in Birmingham it is 102,000 dols.; in Leeds, 103,790 dols.; in Manchester, 120,700 dols. These figures are calculated from the latest published returns, but are not all for the same financial year. The total capital of the eight metropolitan water companies is 62,011,800 dols., of which 49,288,724 dols. is share capital, and 12,723,076 dols. loan capital. The gross revenue of the companies for the year 1882 was 7,909,219 dols. The accounts for 1883 will not be issued for some months. It is not intended, nor is any intelligent reader likely to suppose we intended, that the comparative figures which have been given above are to be regarded as evidence of what the price of water ought to be in London. Before a complete and proper comparison can be drawn between the water charges in the metropolis and in other cities, there are many circumstances and conditions to be considered and allowed for.—*Sanitary Engineer.*

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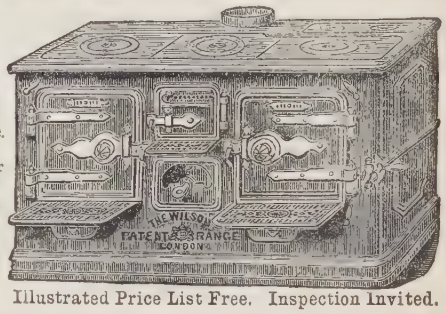

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THE INTERNATIONAL HEALTH EXHIBITION.

THIRD NOTICE.

GROUP I.—FOOD (*Continued*).

CLASS V. (New Varieties of Food: Food for infants and invalids; new concentrated foods of all kinds). The first case in this class is that belonging to Messrs. Savory & Moore, the well-known chemists of New Bond-street, who exhibit (167) preparation of the digestive ferments for peptonising—*i.e.*, artificially digesting food, together with the apparatus used in the peptonising process and disinfecting vapourising appliances. Mr. G. Mellin, Marlborough Works, Peckham, S.E. invites attention (169) to the food for infants and invalids with which his name has long been associated. In a letter to the medical profession on the subject of rearing hand-fed infants, the inventor, after condeming the use of condensed milk or of the advertised foods, advises a resort to his preparation, which he says is a brownish granulated powder, quite and easily soluble in water, and consisting of grape sugar (not cane or milk sugar) and high values of nitrogen (gluten) phosphates and other mineral nutrimental agents. It possesses a high degree of alkalinity, in order to neutralise the acidity of cow's milk and that of the cereals employed. It is made from wheaten flour, coarsely-broken malt, and carbonate of potash, which are introduced with water into a large digester, and allowed to go through Liebig's process, by which all the starch is transformed into dextrine and grape sugar. It is there strained through several sieves in order to separate all the husks, bran, and inert portions of the malt, that constitute more than half the cereals employed, and is finally evaporated to dryness in a vacuum pan. The low temperature (140° Fah.) at which it boils for hours induces a further reduction of all the sugar-forming bodies into grape sugar. Mr. Mellin is also the inventor of "Lacto-Glycose," a substitute for the natural food of very young children. Most people are tolerably aware that cow's milk, even when treated in the best known manner by dilution and addition of the wanting elements of sugar and salines, is not exactly what is required. This Mr. Mellin ascribes to the tough and leathery clot formed by the coagulation of the caseine (quite different to the light and flocculent precipitate of the cheese in woman's milk), which resist the comparatively feeble infantile digestion. "Lacto-Glycose" is an attempt to overcome this difficulty, and, practically, is a mixture of Mellin's food with dried cow's milk. By dissolving the granular powder in hot water is obtained a very similar product as that prepared by dissolving Mellin's food in diluted fresh cow's milk, with this difference, that the special organisation of the caseine in cow's milk has been destroyed, simply by mechanical means—viz., by the prolonged stirring of cow's milk and Mellin's food during the process of evaporation at a low temperature. The first mixture will, when exposed to heat, coagulate immediately into formidable lumps of cheese, while the solution of "Lacto-Glycose" will not coagulate at all for a while, and then only into a creamy mixture, which shows the coagulum only by allowing it to rest and to settle. This preparation, we believe, has been used with success at Guy's and the East London Hospital for Children. The Cereals Manufacturing Company, 44, Great Tower-street, E.C. (170), claim, on behalf of their preparations, that they are "the purest, cleanest, most nutritious, palatable, economical, and easily-digested foods ever introduced." In the manufacture of these foods the grain is first freed from all impurities usually found in it. It is then hulled, which operation not only removes the outer woody covering or bark, containing no nourishment, but also insect eggs and smut. The grain thus purified is then crushed, and for several hours is scientifically cooked by a peculiar application of moist steam. By this process the indigestible starch is converted into digestible sugar without interfering with the presence of the necessary phosphates, nitrates, and carbonates. A further effect of the progress of steam-cooking and desiccating is that it removes all possibility of the food turning musty, sour, or wormy. Messrs. A. Crawford & Son, 20, Mill-street, Belfast, are the manufacturers (171) of Irish cornflour or "amylaceous food," a preparation of Irish wheat, recommended both for table use and as a food for infants, on account of the ease with which it can be digested and the nourishing power which it possesses. Messrs. Mottershead & Co. are the exhibitors (173) of several varieties of peptonised foods and of Benger's liquor pancreaticus, used in their preparation. Amongst the large number of essences, &c., shown (175) by Messrs. Brand & Co., 11, Little Stanhope-street, Mayfair, is their essence of beef, originally prepared in 1861 by this firm, under the direction of Dr. R. Druitt. At that time Dr. Druitt put this essence forward as a remedy for intense nervous exhaustion, and expressed before various public bodies his preference for this mode of treatment over the administration of alcohol. The medical men of those days who mounted the non-alcoholic platform had greater difficulties to contend with than their successors of to-day. Mr. J. Hoff, London Bridge (176), and Mr. Arthur E. Ekins, St. Albans (177), both exhibit malted farinaceous foods, and Mr. J. Bonthron, 106, Regent-street (179), has a stand containing diabetic bread, biscuits, and flour, prepared, as the name indicates, to meet the case of persons suffering from diabetic affections. Mr. W. H. Torrance, Edinburgh, sends specimens of his rusks for very young infants, as to which Dr. Stevenson Macadam, of the Edinburgh Surgeon's Hall, writes:—"The rusks are well made, are very porous and light, are highly palatable, and are easily digested. The analysis proves that they form an excellent feeding mixture, eminently suited for the healthy sustenance of the young." Messrs. Loeflund & Co., of Fenchurch-street, are the English agents for "Pure Hordeum," a malt extract made from Bavarian barley, which, it is said, contains more nitrogenous matter than any other known cereal or combination of cereals. The firm exhibit also compounds of Hordeum, including "condensed cream emulsion," a combination of fresh cream with pure barley malt-extract,

which contains about 25 per cent. pure fat with 50 per cent. carbo-hydrates. A rarity in the way of condensations is some condensed mare's milk, sent (188) by Dr. Carrick, of St. Petersburg and London. Mr. Wm. Muller, Abchurch-lane, exhibits (183), as the London representative of the Swiss Dairy Company, of Lucerne, a quantity of the "Baby Brand" condensed milk. The fluid is obtained from Swiss and Holstein cows, and preserved in tins, not soldered, but hermetically sealed by a patent process. The "Baby Brand" is distinguished from many other similar substances, inasmuch as no sugar or any foreign ingredient is used in the process of condensation. Kopf's Compressed Food Company, Curtain-road, E.C., is represented by a collection (190) of several of their, to use a trade term, "leading" articles, including turtle-soup in tins, essence of turtle in tins, concentrated beef-tea, compressed vegetables, and digestive biscuits. The Kreochyle Company, Leytonstone, E., derives its name from a liquid meat which it manufactures, and which is the invention of Messrs. Barff & Wire. "Kreochyle," we are informed, is prepared from the best English beef without the aid of any chemicals, being entirely free from fat, gelatine, and fibrin, and contains the whole of the soluble albumen and other extractives of meat. It can be taken, retained, and digested by patients where every other kind of food, solid or liquid, is rejected.

Class VI. (Cookery Practically Demonstrated).—This class is intended to be a practical instructor in what are too often the mysteries of economical cooking. There are nominally seven exhibitors, but they are really located in the department devoted to machinery in motion. To that department, also, they are relegated in this series of notices.

Class VII. (The Chemistry and Physiology of Food and Drink; the Detection of Adulteration; Materials Used as Adulterants, Analyses, Food Constituents and Equivalents, &c.).—There is probably no section in the whole Exhibition more interesting or instructive than this small class of a dozen exhibits. The contributions of the Science and Art Department alone are well worthy of careful attention. Arranged in a number of cases are illustrations of the whole chemistry and physiology of food, mostly from the food collection in the branch museum at Bethnal-green. In one case are shown the component chemical parts of the human body, and the ultimate elements into which that body is resolved after death; in another, the daily rations suitable for an average man are analysed, and the daily supply and waste of the human body is shown; whilst the other cases contain specimens of almost every species of food and drink, and to each is affixed a printed statement showing the nutritive flesh forming and other properties of the articles exhibited. In addition there is a display of what are called "public dietaries"; that is, the ordinary and punishment rations in our prisons, military establishments, &c. One cannot help thinking, when standing before this portion of the collection, of the immense strides our administrators have made since Howard denounced our prison system, and since the Crimean War exposed the shortcomings of the commissariat and hospital departments of the Army. Messrs. H. S. Carpenter & W. O. Nicholson, 32, Holborn Viaduct, exhibit (196) their new appliance for testing water. This method has been devised for the purpose of cultivating the growth and reproduction of bacterial and other low organisms, the germs of which may be present in a sample of water, but may otherwise escape detection. It is obvious that the great difficulty attending research of this kind is the prevention of the access of extraneous organisms which may be present in the atmosphere, and this difficulty appears to have been completely surmounted by Messrs. Carpenter & Nicholson. Messrs. Joseph Davis & Co., Kennington Park-road (197) are the manufacturers of apparatus for milk analyses and milk and cream tests; and Messrs. W. Watson & Sons, High Holborn, exhibit (199) a variety of microscopes and other scientific instruments. The extraction of sugar from beetroot, an industry which we started some years ago in the Eastern counties, but which failed, has been revived of late with much promise of success by Bolton & Partners (Limited), 4, The Sanctuary, Westminster, who exhibit (196) samples of beet-root and beet-seed, several varieties of sugar made from the root, beet molasses, and strontia, a substance which is largely used in the manufacture of beet sugar, and deposits of which have quite recently been found in considerable quantities in two or three of the Midland Counties. This class would not have been complete without some contributions from the "Parkes Museum, for the scientific investigation and practical study of all matters relating to Health," and accordingly that Institution has a large stand (205) whereon are displayed illustrations of the chemistry and physiology of food and nutrition, together with indications of the subjects embraced, the arrangements adopted, and the appliances used at the Museum. From these it appears that the scope and classification of the Museum embraces all that appertains to public, domestic, and personal hygiene. In addition to a library, which is constantly growing in size and practical value, the Museum embraces such a variety of subjects as engineering and local hygiene, materials and details of house construction, household fixtures, including appliances connected with lighting, warming, cooking, and sanitary purposes generally, food and drink, and the preservation from and relief of disease. It is not very long ago since the Museum in Margaret-street, Regent-street, was opened, and it may be hoped that the attention which will be drawn to it by this Health Exhibition may result in an increased popular support, and an enlargement of its capacity for useful educational work.

Class VIII. (Diseases due to Unwholesome and Improper Food).—The solitary contributor to this class is Dr. Cobbold, 74, Portsdown-road, W., who exhibits (206) drawings of parasites and parasitic diseases, such as trichina and trichinosis, living parasites in sheep, beef-measles (or the young stages of tape-worms allied to the similar organisms which produce "measly pork"), the beef tape-worm, and the liver fluke, which produces "rot" in sheep.

Class IX. (Practical Dietetic Army and Navy Rations, Prison and Workhouse Diet, Foreign Dietaries, &c.)—This is another small class, and includes an exhibition by Messrs. Silver & Co., Inn Court, Cornhill (207), of their camp-kettle and camp-fire combined, which is a mess-tin with rations, having a self-contained heating apparatus; it is intended for soldiers, sportsmen, and travellers. Messrs. Moir & Son (Limited), Leadenhall-street, send (208) specimens of army and navy rations in a tinned and compressed condition; and Mr. E. G. Huletts, Betterton-street, Bloomsbury (209), shows his canteen, which contains in the smallest possible compass rations for a couple of days.

Class X. (Publications, Literature, Models, and Diagrams relating to Group I.).—The catalogue contains the names of two firms as exhibiting under this head, but both really show in other classes.

Class XI. (Apparatus and Processes for Conserving, Storing, Conveying, and Distributing Fresh Food of all Kinds).—The majority of the nominal exhibitors here, too, are really represented in the section devoted to machinery in motion. Messrs. Vidie & Son, Pantin Glass Works, Paris (212), are patentees of the Octagonal syphon, diagrams of which are exhibited in this class; and Messrs. Stiff & Sons, Lambeth, send (213) a varied collection of potteryware, including jars for wines, spirits, and beer, acid

taps, &c. Mr. Edmund James, Southampton-buildings, Chancery-lane, is the manufacturer and exhibitor (214) of the "Ne plus ultra" feeding-bottle, the invention of Dr. E. O. Day, of the Royal Hospital for Children and Women, Waterloo-road. It seems to us to compare very favourably with most articles of the kind now in the market, and obtained an award of merit at the Medical and Sanitary Exhibition. In the first place there are very few junctions; the cork and tube are in one piece, and are made of vulcanised india-rubber. The bottle itself is quite plain and smooth on the inside, so that it is very easily cleaned, and there are no grooves or recesses to form a lurking place for sour milk to act as a leaven upon the fresh milk. No porous material is used in its construction. There is no cork or cork-rim, and nothing but glass and india-rubber enter into its composition. The next exhibit (215) is of the same class, and is by Messrs. Riley, Charles, & Co., Langley-lane, Vauxhall. It is called the "Blue Bell new hygienic feeding-bottle." It has a screw china stopper, and a milk passage takes the place of the ordinary tube; on the upper end of this passage is a bell-shaped rubber, and on the lower end a glass pipe. "Easy to keep clean" is the great advantage claimed for this bottle. Passing from infantile to adult beverages, we come to the stand (216) of Mr. W. J. Chervat, Kingsland-road, who exhibits models of brewers' casks made of memel oak, to a scale of one pint to a barrel; whilst Mr. G. Fleming, Strand, W.C. (217), is the manufacturer of air-tight and lock corks. There are a number of exhibitors in this class to whom reference may be more properly made when we come to deal with those sections in which machinery in motion is exhibited.

CLASS XII. (Machinery and Appliances for the Preparation of Articles under Group I.).—In this class many of the well-known cutlery and electro-plate manufacturing firms are exhibitors—Messrs. Mappin Brothers, Messrs. Mappin & Webb, Messrs. Priest & Co., Messrs. Joseph Rodgers & Sons, and others. Mr. P. A. Maignen, the inventor and maker of the well-known "Filtre Rapide," is an exhibitor in this class (223) of the application of his system of filtration to the clarifying of wines, spirits, beer, and chemicals. We shall have occasion to notice, in its proper place, Mr. Maignen's filters for ordinary domestic use, but for the present we will confine ourselves to these trade filters, if they may be so called. It is pretty well known that the old method of clarifying wines, beer, and other fermentiscible liquids was by the introduction of "finings," which consist of certain albuminous substances dissolved with sour wine, sour beer, or sulphurous acid. These "finings," when introduced into the barrel, form a net on the top of the liquid, and this net, gradually settling down, carries with it to the bottom of the barrel the impurities contained in the liquid, and this brings about a gradual clarification. There are, however, several objections to this necessarily slow process, the principal of which are that the slightest fresh fermentation will break the net, and so defeat the purpose in view; and that the liquid in which the "finings" is dissolved frequently proves injurious to the quality of the wine or beer into which it is put. The inventor of the "Filtre Rapide" points out that "fining" is putting a filter into the wine, and filtering is putting the wine into a filter. He further claims that "fining" is to take away from wine colour, body, and flavour, thereby reducing its value considerably, and that filtering, through his process, is simply straining the suspended impurities without interfering in the slightest degree with the character or value of the wine, but, on the contrary, improving it in quality by removing the germs of fermentation, which, when left in the wine, turn it "sour or sick." The same considerations apply to beer, cider, and all other fermentescible liquids. The wine-filter, when fitted for work, stands upon a sort of tripod. The upper part of the outer case of the filter is of the ordinary round shape, and the lower part has a wedge-like appearance. Inside the wedge-shaped part of the filter is a filtering frame, with outlet going through the bottom of the filter, with racking and bottling tap attached. This frame is covered over with a special cloth, which is easily laced and unlaced (the filtration takes place from the outside to the inside of the frame), and on the cloth is deposited a layer of Maignen's Filtering Paper (previously reduced to pulp and washed). The filtering paper forms a perfect and even layer, which arrests all suspended impurities. The filter is so constructed that the filtering frame can be easily taken out, the cloth unlaced, washed like a handkerchief, and laced on again. The same principle is applied, with slight modifications, to the filtration of beer, syrups, and chemicals, and with considerable success. The apparatus is in use by a very large number of well-known wine and spirit dealers, and, judging from the evidence before us, with extremely satisfactory results; whilst some of the great brewery firms are saving, we are informed, considerable sums every year by the adoption of the same means. Messrs. Pillivuyt & Co., Paris, send (225) some three hundred pieces of fire-proof china cooking utensils; and Messrs. Langton, Son & Co., King Edward Street, E.C., have a goodly show (231) of the same articles, made, however, of wrought-iron and lined with enamel. Mr. R. Holbrook, of South Norwood, exhibits (227) a patented contrivance for opening tins which, by its use prevents the large number of small but annoying accidents constantly occurring in the kitchen, and is thus really no insignificant addition to the minor conveniences of domestic life.

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"You just take a bottle of my medicine," said a quack doctor to a consumptive, "and you'll never cough again." "Is it as fatal as that?" gasped the consumptive.—*Boston Globe.*

Maraschino is made by fermenting the juice of Dalmatian prunes and peaches. Kirschwasser is made from the juice and stones of black cherries.

Cabasso warmly thanked the physician who had just cured him. "Doctor," said he, whilst seizing his hand, "I shall never forget that I owe you my life." "You exaggerate," mildly replied the disciple of Æsculapius; "it is exactly correct to say that you owe me for fifteen visits."

Vermouth.—Take of Peruvian bark ½ oz.; lemon-peel, angelica root, balm leaves, lesser centaury, of each 3 drachms; juniper berries, coriander seeds, cinnamon, mace, of each 1½ drachms; wormwood, 1 drachm; syrup of bitter orange-peel, 4 oz.; spirits of wine, 3 oz.; dry white wine, 3 gallons; macerate for some days and filter. —*Mineral Water Trade Review.*

The organic matter which is found in the dust of the shelves of a pharmacy consists largely of carbon and *débris* of wearing apparel. It forms, in the course of a comparatively short time, a dense, dark-coloured layer on bottles, which thereby lose their brilliancy, and in some cases, according to Flukiger, causes the stoppers to adhere firmly to the necks.

One of our scientific contemporaries, after alluding to the classical researches of Reichenbach, Phipson (*Meteors, &c.*), Buchanan, Tissandier, and Nordenskiold, upon the mineral matter found in the air, alludes to some recent examination of sand from the neighbourhood of the Great Pyramid, the Nile mud, by Herr Schuster, in which this chemist found a considerable amount of magnetic particles perfectly visible under the microscope.

The products which suffer most from the introduction of dust in the pharmacy are especially the more delicate and fragrant preparations, such as distilled waters of various kinds. As this organic dust invariably contains the germs of fungi, its introduction into orange-flower water soon gives rise to long filaments of mycelium, which set up a peculiar kind of decomposition, and the product deteriorates rapidly in quality.

There are many "trade tricks" and other points about sugar that are interesting. "Raw sugar" is very sweet, but abounds in "sugar mites" to an extent almost incredible. It is also subject to much adulteration. Large grained sugars are purer than smaller grained sugars; they do not "handle" so well, as grocers know. Many forms of "sweeties" are coloured with poisonous dyes, especially greens, yellows, and reds. The flavouring "essences" used, too, are not always free from deleterious properties.

It is said that the cochineal trade has been nearly ruined by the discovery of aniline dyes. Until very recently this trade was the mainstay of the Island of Teneriffe, the cochineal depending upon the cultivation of the cactus plant, which, since the supercession of the trade of aniline, is no longer the remunerative business that it formerly was. The failure of the trade has affected all classes of society, the rich as well as the poor.

A paragraph in the *Philadelphia Grocer* tells how a housekeeper or a grocer can prove the quality of butter by melting it. Pure butter melted produces a pure, limpid, golden oil, and retains the butter flavour. Melt oleomargarine, and the oil smells like tallow, and a scum rises to the surface. Butterine is a mixture of dairy butter and fats. Melt that and the butter oil will rise to the top. Pour this off and you will have the fats at the bottom, whitish in colour and giving off a disagreeable smell.

Colour Blindness.—The Pennsylvania Railroad Company still continues the examination of its employés for colour blindness and other defects. This has been continued for a number of years, the men being examined in batches. The general manager of the company states that these examinations have resulted thus far in ascertaining that about 4 per cent. of those examined have proved defective either in hearing, vision, or ability to distinguish colours. Nearly 500 men have been so unfortunate as not to pass the examination, and were suspended.

In carrying children in the arms, care should be taken not to carry them habitually on the same side, as this tends to make them one-sided, a condition that may be frequently observed in all the children of a mother who can nurse only from one breast. Not only the bodies but the heads and faces of a whole family can sometimes be drawn over to one side. The only remedy is to change the position frequently, a very difficult thing for such mothers to do, but something that good-will and attention can accomplish. —*Weekly Medical Review.*

Life and Strain.—A careful study of the qualities and capacities of one's material is the very first thing to be done before determining the tear and wear to which it is to be subjected, or arranging the work it is to do. This is a comparatively easy matter, when an ordinary machine is to be made, however complicated. The iron and the steel of the locomotive can be most accurately tested. Yet all prudent engineers allow an enormous margin for casualties. The actual strain put on is not half of what the machinery could really bear. Who would subject the plates of a boiler to a pressure just up to their bursting point? Nature in her mechanics usually makes much more allowance than engineers do. The heart of an animal could send five times the amount of blood that it has to propel at twice the rate of the normal blood current. The arterial pipes that contain and conduct the blood to the extremities are of sufficient thickness and strength to resist five times the pressure put on them day by day. The stomach in a healthy man has usually the power of digesting twice or thrice the amount of food really needed for nourishing the body. Woe betide the diners-out if it stopped short just at the point when enough for Nature's wants had been digested! This principle of having a reserve of spare power beyond the ordinary daily needs, only to be called into operation on rare and special occasions, is Nature's principle throughout the whole region of life. She scatters seeds by the million where thousands only can grow.

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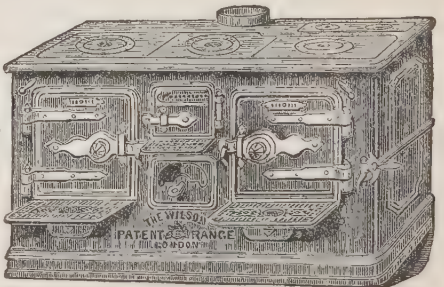

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"International Health Exhibition" Supplement to

HEALTH

A Weekly Journal of Domestic and Sanitary Science.

EDITED BY DR. ANDREW WILSON, F.R.S.E.

"Reason's whole pleasure—all the joys of sense—
Lie in three words, Health, Peace, and Competence."—*Pope.*

THE INTERNATIONAL HEALTH EXHIBITION.

FOURTH NOTICE.

Group I.—Food (*continued*).

Class XII. (Machinery and Appliances) *continued*.—Mr. L. B. Bertram, Colville Mansions, Bayswater, exhibits (234) a patent colander, saucepan, and cook-pot cover—a very useful invention, consisting, as it does, of an ordinary saucepan with a perforated lid. The perforations are covered with a shield, and when the vegetables inside are cooked, the lid, which is held on to the saucepan by clips, is converted into a colander by sliding back the shield which covers the perforations. The advantages of this patent are, that the food remains unbroken, and that in the case of vegetables, it is kept dry and of good colour. Mr. James Kite, 22, Upper Kennington-lane, is the inventor of another culinary patent. He exhibits (232) an automatic meat-baster, which, he maintains, saves about one-twelfth of the meat roasted, retains the moisture of the meat, strains dirt and grit out of the hot fat, and keeps up a continuous basting of the meat during the process of roasting. Messrs. Walker & Hall, Howard-street, Sheffield (241) are the makers of Sir Phillip Cunliffe-Owen's coffee apparatus (the peculiarity of which is that the coffee liquid is distilled from the ground berry, instead of being merely an infusion); and are exhibitors also of other descriptions of coffee apparatus, electro-plated goods, &c. The models sent by Sir E. F. Du Cane, R.E., K.C.B., Surveyor-General of the Prisons Department (241*a*), are a source of much attraction and interest to the visitors. They represent cells, baths, &c., as provided in that sombre pile of masonry known as Pentonville Prison, and as the details of prison life are always a matter of curiosity to the great outside world, a word-sketch of Pentonville, so far as these models enable one to judge, may not be out of place. Each prisoner in such a prison, then, has a cell of not less than 800 cubic feet capacity. The window of the cell has a ventilator which can be opened and closed by the prisoner to admit air from the outside. The cell is further supplied with warm air through a flue leading from a hot air chamber under the corridor floors, this air entering the apartment through a grating near the ceiling. The foul air is extracted by means of flues in the opposite wall, the inlet to the flue being placed about 12 inches above the floor and covered with a grating. This flue leads to a horizontal trunk in the roof, whence it is drawn through the extraction shaft by the action of a furnace. A gas-light is provided for each cell, accessible only from the corridor out of the control of the prisoner, and a flue is provided for carrying off the heated air. A bell communicator is fixed in each cell which sounds a gong in the corridor, and an index or label is thrown out at the cell door to show from which compartment the gong has been sounded. The cell doors and frames are of wood, lined inside with sheet-iron, and have a glazed hole with a drop-cover in the corridor used for inspection. In each cell are fixed shelves for the books, utensils, bedding, and tin-ware, and a wooden table is pinned into the wall. The furniture consists of a stool, chamber with lid, basin, water-can, and drinking-cup, and a wooden bed with mattress and bedding. In each cell are religious, education, and library books. The cost of the erection of a cell such as we have been describing is about £75 when built by private contract; but when erected by convict labour, as was the case at Pentonville, it averages only about £40 per cell. The other model is of the baths and latrines attached to a convict establishment. Besides the ordinary conveniences for washing, each prisoner is expected to wash himself all over at least once a week, and baths are provided for this purpose. Each bath is separate, hot and cold water is laid on, and all the arrangements of this department of a prison are made with a view of economising time, so that all the inmates may have their weekly tubbing within a specified portion of the waking day. A building such as this model represents contains 64 baths, 66 latrines, and four rooms above. Its cost by convict labour is about £930, and by private contract £1,350. Sir Edward Du Cane also exhibits in a couple of cases the daily rations at her Majesty's prisons, together with the table requisites supplied for the use of the convicts. Many people will be of opinion that, side by side with these models and specimens, there should be a similar display from one of the workhouses of the metropolis, or of any large country town, in order that the public might compare the provision made for the poor with the sanitary and hygienic excellence to which our prison establishments have attained.

DAIRIES.

The range of model dairies, old-fashioned, some of them, in their external appearance, but thoroughly modern and scientific in their internal appliances, which stretch along nearly half one side of the South Gallery, are full of interest alike to the ordinary visitor and to that less numerous class of persons who, in their progress through this Exhibition, like to speculate upon the various evidences of human progress which are presented to their view. Here, in South Kensington, one may pass at a step into a fully-appointed dairy farm with its cows, milkmaids, churns, and men in smocks; but the whole place is as clean as a hospital ward, and savours not at all of the delightfully picturesque muddle which many of us have associated, as the result of past observation, with dairy farmers and dairy farms. All this is interesting enough from a theoretical and scientific point of view, but its practical application is even more satisfactory, for it is a proof that at last Londoners may, if they only take the trouble, be supplied with milk which, so far as human skill can make it, is absolutely free from contamination. For these are not only model dairies in the sense of representing what a dairy ought to be; they are models of what several dairies actually *are*. Comparison of these establishments with the so-called "dairies" which are now rapidly disappearing—"dairies" in thickly-popu-

lated side streets, the necessary cows being located in a dark shed in the rear—is liable to give rise to a pleasant and not unjustifiable optimism.

First in order is the London and Provincial Dairy Company, of Halkin-street west, Belgrave-square, with branches at Brixton and Bayswater, and a country farm at Whistley, near Devizes, Wiltshire. It will only be necessary to enumerate their leading exhibits, in order to show how complete are their business arrangements. They show some pedigree Shorthorn and Alderney dairy cows; pure and cross-bred prize poultry of all kinds; milk in its natural state, as yielded by healthy and well-fed cows; cream; eggs of all varieties of domesticated and wild fowl used as food in this country; samples of various animal, vegetable, and seed products yielded on and applicable to an English dairy farm; stuffed specimens of Whistley four-horned sheep; various models, including one of this "model dairy" itself; confectionery made from cream; English-made cheeses; artificial human milk, peptonised milk, curds, whey, and buttermilk; a numerous array of milk and cream-testers; and a collection of publications having reference to the subject of dairy-farming. In what may be called the mechanical department, the London and Provincial Dairy Company are particularly strong. They illustrate the rapid and complete separation of milk and cream by the action of centrifugal force; another process of separation by the submersion of warm milk in cold water; a capillary water-refrigerator for preserving the properties of country milk in transit to London; a patent cold, dry-air machine for the preservation of perishable foods; and churns in infinite variety. Most of this machinery is exhibited in full work, the requisite power being supplied by means of an "Otto" silent gas-engine.

Next door to the London and Provincial is the Express Dairy Co, Limited, whose headquarters are at Bloomsbury Mansions, with branches in the Strand, Blackheath, and Hampstead, and dairy farms at Finchley and Hill Top, near Dorking. The exterior of this dairy presents a gabled roof, small diamond-paned windows, and rough concrete walls, after the manner of an old-fashioned farm-house. Inside is a complete working dairy, fitted up and equipped for fully illustrating all the various details of a dairy farm. The company shows in the most satisfactory manner the great care which it takes in the collection and delivery of its supplies, so that the milk shall reach the customer in an absolutely pure condition. Several varieties of centrifugal cream-extractors are exhibited, and visitors are able to watch the whole process of butter manufacture to preservation and package for export. Cheese-making is also carried on with regularity. Different preparations of milk and cream for infants and invalids are placed on the counters for inspection. The cattle exhibited belong to four different classes, and there are several varieties of goats. The "Hadskod" and the "Improved Horizontal" cream separators are exhibited for the first time in this country; and, lastly, there is a model—$\frac{1}{8}$th-inch scale—of the company's experimental farm at Finchley.

The next dairy is also built to represent the outside of a farmhouse of the old type, and belongs to Messrs. Welford & Sons, Warwick Farm Dairies, Maida-vale. It is a model, so far as the arrangements are concerned and to a certain extent, of the Home Farm, Willesden, and the dairy at St. Peter's Park, Kilburn; and the whole work of a fully-appointed dairy is carried on here throughout each afternoon before crowds of visitors. The churns are by Messrs. Thomas & Taylor, the milk separators by Messrs. Laval & Co., the utensils by Messrs. Bradford & Gillings, and the machinery by Messrs. Hindley, of Bourton. The stained-glass windows were supplied by Mr. Matthews, of Bayswater, and the floral decorations by Mr. Walter Wood, of Conduit-street. This building has been erected by Messrs. Martin Wells & Co., of Aldershot. The dairy is built wholly of non-absorbent and impervious materials, the walls being lined with encaustic tiles, and the flooring formed of granite concrete. The electric light is used, and the ventilation is formed in the roof above. Attached to the working dairy is a cleaning room, in which the utensils are daily cleansed by steam. Another feature of the Exhibition is a well-filled laboratory for analysing and testing the milk, butter, and other products of the dairy. The cows are all of pure Jersey or Alderney extraction, and they are housed in a shed 29 ft. by 19 ft. 6 in., separated entirely from the working dairy by roof and partition, and ventilated by Messrs. Jeakes & Co.'s air inlet louvres and extracting shaft. Provision is made for six cows and some Zulu sheep and goats. The fittings are by Messrs. Musgrave & Co., with water supply to each stall. The floor in the stalls is formed in front with powdered chalk, and at the back with Dutch clinkers, and the walls are lined with encaustic tiles, special regard having been given to the sanitary arrangements.

The model dairy erected by Messrs. Bradford, High Holborn, London, is also well worthy the large amount of attention it has already received. The model dairy, a pretty, cool-looking structure, is very similar to the one exhibited by the firm at the Royal Agricultural Society's Show at York last year, but with this difference, that whereas that was merely a temporary structure, this is an elaborately-appointed and substantial building, the inside walls being of glazed bricks up to dado height, and yellow Suffolk bricks above, the dairy being roofed over with red tiles. Its size is calculated for a farm on which not more than twenty cows are kept, and where butter-making is the principal operation carried on. The dairy consists of four apartments, the entrance-room, the working or churning-room, the milk and butter-room, and the room containing the heating apparatus. The latter is partially detached from the others, and the heat generated by the boiler there is passed through the double roof, where a "Wallness" ventilator is fixed to the milk-room, where it serves to draw off any foul air which may have entered. This same milk-room is further ventilated and its temperature lowered by means of earthenware pipes laid underground and carried from any desirable distance into the air chamber, in which a constant current of cold water is supplied This air-chamber is built of glazed bricks, and under each of its three walls are inserted ventilating brick, from which issues a constant stream of cold air at the lowest possible temperature, in whatever direction the wind may blow. This cold air is carried through and round the milk room, and in its passage comes in contact with the revolving milk-pan stands, of which there are four, holding twenty-four shallow porcelain milk pans; these revolve upon circular discs let into the frames, so that each pan of milk can be skimmed by simply turning the disc while the hand remains in absolutely one position. On architectural designs and construction this dairy is the result of very careful construction, and there seem to be no means left by which impure air can remain in the building, even if it should obtain an entrance. Both the milk room and the churning room (which occupies the centre of the building) are of course fitted with Messrs. Bradford's Dairy utensils, comprising their patent "Diaphragm" churns, the "Albany" butter worker and dairy table combined, new revolving-disc milk pan stands, gauged milk pails, box-wood butter beaters and butter knives, sycamore butter boards, butter prints, cream cans thermometer, creamometer with eight testing glasses

and dairy slate, milk measures, dairy brushes, milk strainers, oak butter tubs, scales with china pan and weights, cream crocks, hot and cold water trough for washing dairy utensils, milk receivers, and an ice refrigerator. The churns are shown at work in this dairy, amongst the new features introduced, and now for the first time exhibited, being the new patent "Alderney" butter worker, especially designed for small dairies. The churn has the advantages of being low-priced, light, and portable. The exhibits also include four sizes of the well-known "Declivity" churns, now fitted with a set screw at each end to cant the churn when necessary, so that either a very small quantity or an unusually large quantity can be churned in it. By means of this contrivance the twenty-quart size will churn any quantity down to one quart.

The other exhibitor in this class is the Pure Standard Food Company, which has a show of dairy appliances, butter, milk, and milk preparations.

GROUP II.—DRESS.

Class XIII. (Collections Illustrative of the History of Dress, National Costume, &c.).—The somewhat misleading title which has been given to this class does not detract from its interesting and even educational character. The first stand is that of Messrs. Waterman & Co., Rupert-street, Bristol (248), who exhibit their hygienic boots, the manufacture of which is based on the following very sensible *dicta*, laid down by Dr. Pullin in reference to this subject:—"The four leading principles in the construction of a boot or shoe, calculated to ensure ease, comfort, elasticity, and endurance in walking, are that—1st. The inner margin should be almost straight to the big toe. 2nd. The toe should be of a natural breadth. 3rd. The heels should be broad, low, and under the natural heel. 4th. The waist of the sole, answering to the arch of the foot, should possess a certain amount of elasticity." The firm are also exhibitors of a patented Cyclist's shoe, designed to prevent slipping, and to give the rider a powerful grip on the treadles. Messrs. Dowie & Marshall, 455, West Strand, who have adopted the epigrammatic trade mark, "The path to health is the footpath," are, of course, exhibitors (249) in this class. We had occasion to comment on the manufactures of this firm when noticing the Exhibition of the National Health Society at Knightsbridge last year, where, by the bye, they obtained a silver medal; but during the past twelve months Messrs. Dowie & Marshall have been engaged in the preparation of several novelties in their own particular line of business. In making a hygienic boot, the *desiderata* to be striven after are extreme flexibility, combined with minimum of weight, and, beyond doubt, Messrs. Dowie & Marshall have been successful in their efforts towards these ends. They exhibit here a double-soled, heavily-spiked boot, the total weight of which is about fourteen ounces—a boot, too, which possesses a high degree of flexibility. Dicitated stockings and socks are well known, but this firm has lately introduced a great-toe stocking—made therefore in "lefts" and "rights"—with the object of attempting to correct the deformities of that member which result from the wearing of ordinary boots. The use of these stockings may be supplemented by the wearing also of a "great-toe" boot, in which there is a special partition for the great toe. Another novelty here is the ventilated water-proof boot. This question of ventilating the human foot-covering has engaged the attention of Messrs. Dowie & Marshall for a long time, and at last they have, as they think, overcome most of the difficulties attending the subject. This ventilated boot has a double sole, and between the two is fixed a layer of small tubes of india-rubber. These tubes run the whole length of the sole, and branch up the boot on each side of the instep, and at the top of the lining of the boot, at the point where these tubes terminate, are punched several small holes. The theory is that in the act of walking these tubes will be pressed by the foot so as to drive all the air from them into the boot through these holes, and that as the foot is lifted from the ground so will the tubes be inflated with fresh air. The tubes are, as it were, hermetically sealed within the two soles, so that no dust or dirt can possibly block them up. Another matter to which Messrs. Dowie & Marshall have turned their attention is the production of a working man's hygienic boot, made to the natural shape of the foot. These they are now prepared to sell—sensible, broad-toed, flat-heeled "understandings"—at a most moderate price, and, if the demand for these goods is as brisk as is hoped, the elastic waist may not improbably be introduced with only a very trifling increase of cost. Messrs. Gilligan & Sons, of Reading, exhibit (250) specimens of the "Lion Brand" waterproof leather. The hide goes through a patent tanning process, the result of which is that the latter is perfectly waterproof, even when worn down to a very thin substance, and it will wear twice as long as the best ordinary leather not prepared in this manner. It appears hard, but it sews well if placed in warm water (not over 80° Fahr.) before it is worked, and it will entirely regain its firmness when finished. Messrs. Allinson & Co., St. Giles'-terrace, Northampton, are the makers of "Hercules" boots and shoes, and have a stand (251) for their display. Strength and comfort are the advantages claimed for these boots, which gained a medal at the Rational Dress Association's Exhibition at Princes' Hall last year. Messrs. Crockett & Jones, Northampton, exhibit (252) a hygienic boot, made especially for sportsmen and pedestrians. The Indestructible Boot and Shoe Sole Company are the agents for Barrett's patent sole, and exhibit it here (254). The invention consists of a light metal plate or skeleton frame provided with solid projections or teeth, which are forced into and through the outer sole from the upper side, and are thus permanently embedded in the leather. The design of the skeleton frame may be varied according to taste, but one of the most practical and simple is that in which the projections are made to follow the shape of the sole and to cross it in arched bands from side to side. It is claimed that the combination of metal and leather greatly increases the wearing power of the sole; and it is added that the skeleton frames are sufficiently light to meet all objections on the score of weight, the largest men's size weighing not more than three ounces per frame, and the girls' sizes less than one ounce. Messrs. Lilley & Skinner, of Paddington (255), are the makers of boots called the "Perfect," and designed by Mr. A. Hannibal, techniological teacher of the late Polytechnic. The boots are manufactured entirely without tacks, and the result is the greatest possible flexibility. The "Sensible" boot, made of a new shape and upon hygienic principles, is also one of Messrs. Lilley & Skinner's exhibits. Mr. James Markie, Wood-street, Finsbury, (256) is the patentee of metal sole lasts, constructed so that the shoes may be made to fit perfectly close round the quarters, and is the exhibitor of a number of boots and shoes made upon these lasts. Messrs. F. Ogden & Co., 13, Sloane-street, have a somewhat similar display (257). Messrs. Pocock Bros., 235, Southwark Bridge-road (258), show their hygienic boots and shoes, together with specimens of boots

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worn in the Middle Ages. The next case (259) belongs to Messrs. Lutwyche & Co., High-street, Borough, and contains specimens of their manufacture for the home and colonial boot-markets. Mr. Jno. Wise, Craven-terrace, Lancaster-gate, shows (261) samples of boots of "hygienic" shape, in which, however, the conspicuous corners at the toes have been rounded off, so as to give a less awkward appearance to the boots when in wear. This exhibitor contends that, as the boot is made considerably longer than the foot, the great toe—in providing for which the corner is made—does not reach to the end, and consequently that, beyond the point it reaches to, there is no reason that the sole should not be rounded off, and a better appearance obtained. These goods are well-made by hand, and are provided with flexible waists, so as to ensure the greatest ease and freedom in actual wear. Amongst the many other exhibits of boots, shoes, lasts, &c., is that of Mr. Jno. Branch, Bethnal Green-road (262) who is the maker of "Reversible" boots and shoes. Mr Branch argues that, as boots are now made, they can only be worn on one particular foot, and that as most people walk a little to one side the heels become uneven, causing an unequal pressure on the bottom of the feet, and leading to too frequent repairs. His boots can be worn on either foot, and he claims that by alternately putting each boot on the left and right foot the level is preserved and the cost of repairing is reduced.

Erratum.—In describing Class II. (Health Exhibition Supplement, May 6), the makers of Midlothian oat-flour, (Stand No. 35), were described as Messrs. A. R. Grant instead of Messrs. A. R. Scott. The address of Messrs. Scott, which is given in the Catalogue as York-street, Glasgow, should be Crookston-street and St. James's-street, Kingston, Glasgow.

RAILROAD HYGIENE.

The *Sanitary Enigneer* says that the Board of Railroad Commissioners of the State of New York have made a new departure in the issue of their circular No. 22, dated December 10, 1883, which we print in another column.

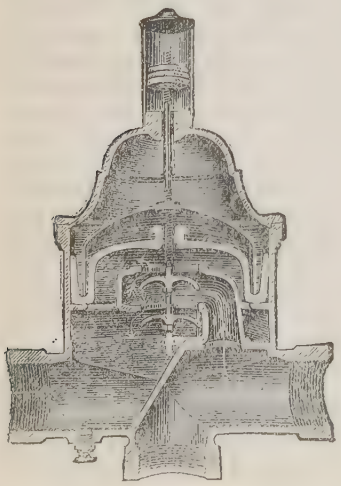
It will be remembered that this board was created to act as a sort of council of arbitrators between the great railroad corporations and the people, to prevent, by a kind of moral suasion, unjust discrimination of rates, and to some extent quarrels between the corporations themselves, in the course of which contests, or at all events as a result of which, the public generally suffers more or less. Possibly there may be a few ingenuous and unsophisticated people who suppose that the board was intended to induce the railroads to be content with fair profits, which would seem to involve the necessity of insuring them fair profits; but on the whole most people seem to look on the board as a sort of pigeon-hole into which can be tucked comfortably away all sorts of complaints and grumblings.

No one, we think, would have ventured to predict that this commission would undertake to improve the ventilation of passenger cars, and we can only account for the circular above referred to on one of three suppositions, viz., 1, Some one or more of its illustrious members must, by the negligence of some official, have been allowed to travel in an ordinary crowded passenger coach, and have gotten a cold or a head-ache in consequence; or, 2, some man with a patent ventilator has been doing some good missionary work; or, 3, it must have seemed expedient about this time to advise somebody about something, and this seemed to be the easiest outlet, the line of least resistance, as it were.

However, the motives for this circular are of secondary importance in a sanitary point of view. The chief questions which concern the public and ourselves with regard to it are—first, what reason have we to suppose that these commissioners are experts in car-ventilation, and that we may rely on the methods which they recommend? and, second, why should they confine their efforts in railroad sanitation to car-ventilation? Why not say something about the evils of air-tight waiting-rooms having red-hot stoves therein; about the foul and dangerous privies at the small stations; about the dangers of the conveyance of contagion in sleeping-cars; the horrors of indigestion which lurk in the prize-packages of the train-boy, &c., &c.? But perhaps the Commissioners mean to take up these and other subjects, and to issue a series of circulars on the subject. Possibly they are going to offer a prize to the little railroad which keeps itself cleanest and makes itself least offensive. In fact, we see boundless possibilities opening up from this first circular, and hasten to proclaim the glad tidings to our readers. When any results follow we shall call special attention to them.

To polish tarnished nickel, use chalk or rouge mixed with tallow.

Human skin and that of young rabbits have been successfully applied in small pieces to large healing surfaces in wounds. Dr. Wilson, however, in the *Medical News*, claims to have obtained very much better results from the use of the internal membrane of hen's eggs. The egg should be fresh and warm.



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International Food Exhibition, London, 1881, Silver Medal. 1882, ditto.

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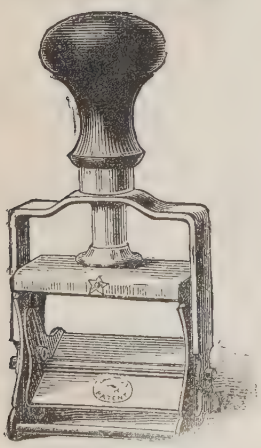

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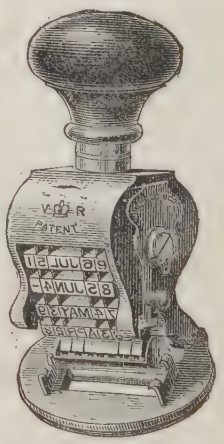

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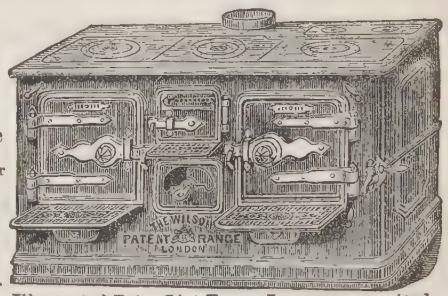

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FIFTH NOTICE.

GROUP II.—DRESS (*continued*).

CLASS XIII. (*continued*).—Dress, National Costume, &c.—Mr. Matthew Walker, of Dunstable, shows (267) hats and bonnets made in that famous straw-plaiting town, and also a straw hat sewing-machine; and Messrs. Lincoln & Bennett (268) have a collection of silk, tweed, and felt hats suitable for all climates. Messrs. Cooper, Corah, & Sons, Leicester (270), are makers of ladies' and children's jersey specialties, and of all descriptions of hosiery. Miss Louisa Beck, Connaught-street, Hyde Park, exhibits (271) a hygenic dress made on the "divided skirt" principle, and also a very pretty "expanding" dress for lawn-tennis players. Mr. James S. Carter, Oxford-street (273), is a manufacturer of tourists' requisites, including a very handy knapsack, which when fixed in position has the great advantage of not touching the back or shoulders of the wearer; and a boot, designed for Alpine travellers, which has a strong steel spring fitted to the waist, and the sole and heel of which is made of one piece of leather. Messrs. Hamilton & Co., Regent-street (276), the well-known makers of hygienic clothing for ladies, have a very attractive collection of dresses in this class, tasteful in design and sensible in principle. Their divided dress, adapted either for athletes or ordinary wear, is a model of what such a garment ought to be. The divided skirt is light, and is buttoned on to the underlining of the bodice so as to distribute the weight evenly, and allow of its being quickly shortened, if that course should be thought necessary; whilst the bodice, being loose, gives perfect freedom, and at the same time is prevented from working out of its place by being partially fastened to the skirt. The next stand (277) is that of Dr. Jaeger's Sanitary Woollen System Company, Limited, Fore Street, City, where woollen clothing of all kinds, made upon the principles laid down by Dr. Gustav Jaeger, of Stuttgart, is exhibited. The Doctor contends that only Clothing and Bedding made throughout of pure animal wool allow the exhalations of the skin to pass freely away, and that much ill health and bodily discomfort are due to the prevalent unsanitary Clothing. Linen and cotton, whether worn next to the skin or over flannel, prevent the exhalations of the body from escaping and repress them on the skin, where they turn to water. This has long been recognised in respect of all violent exercise, but Dr. Jaeger points out that clothing of vegetable fibre is also highly deleterious for quiet exercise or sedentary occupations. If at any point under-clothing or linen of vegetable fibre intervene between the body and the outer atmosphere, the passage of the exhalations is checked, and the evil effect on the body is felt in many of the most common disorders of the respiratory and digestive organs, and in the general flabby and watery condition of the tissues, which, on the other hand, become drained and hardened by wearing sanitary all-wool clothing. "Herein," says the doctor, "lies the only safe and permanent remedy for excessive corpulence." He attacks the construction of the outer clothing of men, which he declares is such as to admit draughts of cold air up the coat-sleeves and trouser-legs, under the arm-pit and in the bosom, all these defects culminating in the crowning absurdity of leaving the chest to be protected only by the starched shirt-front. This company, therefore, has been formed to make sanitary, all-wool clothing and bedding on scientific principles. This sanitary under-clothing is of pure undyed wool, very porous and soft in texture, the patented construction of the shirt or chemise fastening on the shoulder. The outer clothing is also throughout of pure wool, and is so made as to keep the body at a constantly equable temperature, avoiding the danger of chill, and enabling the wearer to dispense with overcoat and extra wraps. One development of the system is shown in the sanitary woollen sock, with separate receptacles for the toes, like the fingers of gloves. The makers assert that when the toes are squeezed together, as in the ordinary sock, no amount of cleanliness will keep them entirely free from offence; but in the five-toed sock, where each toe is separated from its fellow, the skin between the toes becomes as dry and normal as that between the fingers. The Rational Dress Society, 23, Mortimer-street, W., is an exhibitor (279) in this class. Lady Harberton and her little band of dress-reformers may now be said to have lived down ridicule which was sufficient to have vanquished less devoted teachers of new ideas. Nevertheless, this attractively-arranged stand is approached with an evidently contemptuous curiosity by most of the male visitors, and with a distrustful interest by many of their lady companions. The Rational Dress Society has from the first been an ardent advocate of the divided skirt, which, indeed, it was the means of introducing to the public notice; and, as popular misconception has not yet been effectually corrected on the point, it may be as well to set forth what the Society has to say with regard to it:—"The divided skirt is a skirt divided between the legs so as to clothe each leg separately, the under-clothing to be arranged beneath this as most convenient. It should come to about the instep, quite clearing the ground, and be made about a yard round at the ankle. A draped polonaise, a long coat, or a short upper skirt is worn over this. The divided skirt may appear under the top skirt about two or three inches without exciting the least notice. The divided skirt and the under garments may be fastened to a broad band fitted round the hips, so avoiding pressure of any sort round the waist, or, if preferred, hooks or buttons can be placed on a calico bodice to be attached to corresponding loops on the skirts. The top part of the dress may be any loose body or jacket the wearer may choose, always avoiding bands, ligatures, or pressure of any sort from below the fixed ribs to the top of the hips. In this costume the weight of clothing may be reduced at least one-half, because, as the divided skirts cover the body fully and evenly, fewer layers of clothing are required, and less material in their construc-

tion. We have here a style of dress by which no internal organ can be injured, no muscle cramped, no movement of the body impeded, and to which the wearer may add as much grace and beauty as her own good taste may direct." The society exhibits in this class an American Mounting Climbing Dress, devised by Mrs. Bishop; a very tasteful evening dress in light blue silk, designed by Lady Harberton, and consisting of an adaptation of the trousers worn by Turkish ladies; a rain-proof Kindergarten costume for little girls; a morning dress, consisting of a divided skirt with a Dale-Owen overdress; a walking-dress, as made for Lady Archibald Campbell; and a fancy mountaineering dress, consisting of a divided skirt and a loose fancifully-braided bodice. There are two sets of lace-makers at work in this class, one sent by the Duke of Buckingham and Chandos (285), and the other by the Honiton Lace-making Co., of which Messrs. Marshall & Snelgrove, Oxford-street, are the agents (286). The Duke of Buckingham also exhibits some beautiful specimens of the work, including a lace dress made for the Duchess in 1864, and a scarf dated 1851. The manufacture of Irish lace is not practically shown, but the Donegal Industrial Committee have a stall on which specimens, not only of lace, but of knitting and various descriptions of fancy work, are displayed.

Class XIV. (Waterproof Clothing, India-rubber, Gutta-percha, &c.) The first case in this class is occupied by the Britannia Rubber Company (296), who show a variety of India-rubber goods, including an elastic force-cup for removing obstructions in closet and lavatory drains. It is of the same shape as the familiar "cup and ball" toy, the cup fixing over the basin outlet. Water is then allowed to run into the bowl to the depth of three or four inches, the handle is moved up and down with a quick motion, and the water is forced into the discharge-pipe with a succession of sudden impulsions, so disturbing the obstruction and forcing it through the pipe. The apparatus is extremely simple and cheap, and its use would not improbably save many heavy plumbers' bills. Mr. Geo. Cording, 125, Regent-street (297), who gained three silver medals at last year's Fisheries Exhibition; and Messrs. Mandelberg & Co., Manchester (298), exhibit selections of waterproof clothing for ladies and gentlemen. Some of the ladies' capes and ulsters are really marvels of elegance, both as to texture and colour, and look, at first sight, as much unlike waterproof garments as can well be imagined. They constitute, however, thorough protection in wet weather and some of the makes are most efficiently ventilated. Messrs. Hazenger & Sons, 56, Cannon-street (299) besides a show of waterproof clothing, have also a number of air and water beds and cushions of the ordinary pattern. They are makers, too, of the "Demon" tennis racket, the handle of which is grooved along the back and front, thus affording a perfect grip, a projecting shoulder at the base of the handle, giving all the advantages of increased length without adding to the weight. The firm also exhibit a patent tennis ball, the speciality of which is that the Melton covering and the ball are cemented together with pure rubber and then sewn with a specially prepared thread. The sewn seams are then covered with a preparation which has the effect of protecting the stitches, cementing together the edges of the cloth, and prevents grit, moisture, or other foreign substances getting into the seams. Messrs. Swan & Edgar, Regent-street and Piccadilly (300), exhibit in this class as agents for the Gossamer Waterproof Clothing the manufacture of an American company. The waterproofs are sun-dried, and cured, and extremely light. The great advantage claimed for them is that they have no offensive smell, and never, under any exposure to either warm or cold weather adhere or become soft like ordinary mackintoshes. A writer in *Land and Water* made some experiments with them, and this is what he says:—"We have made a water-trough of it for a whole night, but not a sign of moisture came through, and then the next day we placed it on the grate in the front of a good bright fire for two hours, making the material as hot as we could without actually burning, but there was not a particle of offensive smell and not the faintest approach to stickiness." From this it may be inferred that the gossamer water-proofs thoroughly bear out all that is claimed for them by the makers. Mr. James Sinclair, 104, Leadenhall-street, has an exhibit (301) that is likely to attract a good deal of attention, both on account of its novelty and its usefulness. It consists of a number of articles—silks, satins, boots, cloth goods, &c.—subjected to a process called "Warnerizing," the invention of an American lady named Warner. The process consists in their being dipped in a solution which renders the articles rain and damp proof without destroying their ventilating qualities or injuring their appearance, and also protects them from moths, besides adding to their durability. We saw some very delicate satin which had been "Warnerized"; the fabric was certainly uninjured, it admitted no damp, and the surface, after being exposed to the wet, only needed a light brushing with a soft cloth to remove every stain and sign of moisture. Messrs. S. W. Silver & Co., Sun Court, Cornhill (302), are makers of waterproof clothing, and also exhibit their applications of India-rubber to the butt end of rifles, with the object of protecting the shoulders from recoil, and their India-rubber hand-guard for neutralising the effects of the heated barrel. The other waterproof exhibitors include Messrs. Anderson, Abbott, & Anderson, 37, Queen Victoria-street (305), who show a waterproof health coat, invented specially for this exhibition. The coat admits air from the back and under the arms in the usual way, but some cords are attached inside the back which keep the garment away from the body of the wearer, and thus ensure more perfect ventilation. The firm are also makers of several waterproofs for ladies. The sex, we are told, objects to the ordinary means of ventilating these articles because the break in the material, so to speak, destroys their appearance. Messrs. Anderson, therefore, have manufactured these goods with a partial lining of non-waterproof material, which prevents retention of moisture, this being the greatest objection to India-rubber and gutta percha over-clothing.

Class XV. (Furs, Skins, and Feathers. Dresses for Extreme Climates).—Of the exhibitors of furs, &c., in this class, it may be said of all of them that they are effective, as furs always are, but beyond that there is very little that is new in them. An exception may perhaps be made in the case of the International Fur Co. (309), who show a ventilating sealskin jacket, and a chest-protecting cape, in which great warmth is combined with extreme lightness. Messrs. J. Ellwood & Sons, Great Charlotte-street, Blackfriars-road (314), are the inventors of air-chamber hats for hot climates; and Mr. S. W. Norman, 3, Belgrave Mansions, Grosvenor Gardens (312), exhibits some mountaineering boots. Concerning these, Mr. Edward Whymper wrote from Quito, Ecuador, in May, 1880:—"I have been so fortunate as to ascend the Chimborazo, a mountain which many persons have tried to get up during this century without success. It is the highest ascent I have made, and with one or two exceptions is the greatest altitude that has ever been reached on the earth. Both my mountaineers got their feet wet. I, however, kept my feet perfectly dry, and escaped frostbite in the feet. I was wearing your thick-soled elastic-side boots, and my men wore laced-up boots. I have long held the opinion that laced-up boots

are not so good for high mountaineering as elastic sides." Messrs. Somerville Bros., Kendal, Cumberland (316), exhibit their "K" and "Natural" boots. The former are adapted for sporting purposes, and of the latter the Secretary of the Ladies' Sanitary Association writes that after a careful examination the Association has certified that the shape of these boots is as closely adapted to the anatomical and hygienic requirements of the human foot as is consistent with a reasonable amount of attention to appearance.

Class XVI. (Dresses for Sport, Hunting Suits, &c.)—Mr. Peter Robinson, 216, Oxford-street (319), opens this class with a collection of boys' gymnastic suits, jersey, boating, tricycling, and cricketing costumes. Mr. J. T. W. Goodman, 47, Albemarle-street (320), is the inventor of a very effective and useful tricycling and walking costume for ladies. The skirt is cut quite round, so that when the knee of the rider is raised there is no lifting up of the bottom of the dress. The costume is adapted for walking by buttoning the dress in a sort of pleat in front, which takes in the fulness of the round-cut skirt, and produces an appearance exactly like that of any other walking-dress. This costume will be found well worth inspection by ladies who take an interest in that increasing popular and healthful exercise, tricycling. Messrs. Goodman also exhibit a gentleman's cloak of new design. It has an ordinary frock-coat front, but instead of sleeves is provided with a couple of flaps, something after the style of the old-fashioned Inverness cape, but with this difference, that the capes, instead of covering the front of the upper part of the body, only cover the arm-holes. Whichever way the wearer moves his arms the cape will continue to cover them, so that protection and the utmost freedom are alike secured. The firm also show a very neat shooting suit, with movable game pockets, made of the new Khaki cloth, the material adopted by the War Office for troops on active service. Messrs. Howell & James, Regent-street (322), exhibit a very effective "Queen Anne" serge, in every variety of colour, which is described as a hygienic and hygroscopic dress fabric, manufactured to produce the greatest amount of warmth with the least weight, and possessing special facilities for the absorption of perspiration. Some of the dresses made of this material and exhibited here are extremely pretty.

Class XVII. (Live-saving, Divers', and Fireproof Dresses). This is a small class, and includes many of the exhibits at last year's Fisheries. The Cosswell Life-Preserving Company, New York (324), Mr. Joseph Sexton, Bowes-road, Southgate, N. (325), and Messrs. J. & A. W. Bert, 42, Dock-street, E. (328), show life-saving apparatus of various kinds, cushions, belts, bladders, &c. Messrs. Piebe, Gorman, & Co., 187, Westminster Bridge-road (327), send a diving apparatus of the Royal Navy pattern, fitted with telephones; a Fleuss diving-dress, and a Fleuss breathing-dress for working in noxious gases. Mr. Jno. Bell, 118, Southwark-street (236), sends an asbestos fireproof dress for the inspection of visitors, and the Patent Liquid Cyanite Company, Mildmay Chambers, Bishopsgate-street (329), exhibit the invention from which the Company takes its name, and which, when mixed with paints, varnishes, &c., arrests the progress of combustion in buildings where it is used.

Class XVII *a*. (The Comparative Value of Different Dress Materials for Articles of Clothing.) There is only one exhibitor catalogued in this class, viz., Mr. James Forster, of Preston, who, however, is, in fact, an exhibitor in the Machinery in Motion section.

Class XVIII. (Publications and Literature, Patterns, Statistics, Diagrams, and Models relating to Group II.) Those two useful bodies—the Ladies' Sanitary Association, 22, Berners-street, W. (331), and the National Health Society, 44, Berners-street, W. (333)—both have stands in this class for the display and sale of their pamphlets and tracts on sanitary and domestic subjects. Miss Brannon, Hygeia Lodge, Walton Naze Park, Essex, sends (332) specimens of fireproof dresses and fireproof starched stuff; drawings of fireproof and sanitary dresses; and diagrams illustrative of healthy dress.

Class XIX. (Machinery and Appliances for the Preparation of Articles under Group II.)—Most of the nominal exhibitors here really show in the Machinery in Motion section, where they will be duly noticed. There are, however, some exceptions to this rule. Mrs. F. Hubel, 233, Regent-street (334), sends some beautiful specimens of Irish lace. The Donegal Industrial Company, of which Mrs. Ernest Hart, 38, Wimpole-street, is the president (335), has a large stall filled with specimens of hand-knitting, weaving, spinning, and embroidery, the work of the peasantry of Donegal, and also woollen and silk hosiery and other hand-made articles, dyed with non-poisonous art dyes. This Committee is engaged in a thoroughly praiseworthy attempt to provide work for the poor peasantry of the South of Ireland, and we are glad to observe, therefore, that they seem to be well supported by the lady visitors to the Exhibition. Mr. H. Paget, Little Heath, Potter's Bar, N. (336), is the inventor of an ingenious and simple contrivance for producing decorative embroidery and fancy work on an ordinary sewing-machine. Some specimens of its results are very satisfactory so far as one can judge; it is a pity the machine and the specimens are under a glass case and cannot be more fully examined. A great crowd is attracted every day to stand No. 337, where Messrs. Dent, Allcroft, & Co., the well-known glove-makers, have a staff of male and female operatives in full work. Of the ten or fifteen thousand women who are more or less constantly employed in making the gloves sold by the great firm of Dent, Allcroft, & Co., only three hundred or four hundred are at work in the famous Worcester factory, which may be regarded as the headquarters of the English glove trade. The rest work at home, so that by far the largest proportion of English gloves are plain sewn at home. But as they go from the factory to the home, so they return from the home to the factory, for the plain sewing is only one of the many processes through which the skin passes in its progress from the back of the kid to the hand of its future wearer. To supply the requisite materials for the gloves sold by a single firm alone—which, however, it is fair to say has more than half the trade in its own hands—nearly five million kids and lambs are slaughtered annually. That is to say, 16,000 of the two months' old innocents are killed every working day, year in and year out, to supply "Dent's" with material for their gloves. Most of these victims are French born, but some are Irish. The kid skin passes through many processes, all of which are done by men, before it furnishes work for even one single woman. At last, after it has been unhaired, dressed, nourished, staked, soaked in egg yolk—three million eggs a year are used in this work—dried, stained, stretched, "doled," or pared, and cut into shape, it is then punched. All these preliminary operations are performed by men. It is not till after the punching that the women's work begins. Messrs. Dent & Co. have also large factories at Paris, Grenoble, and Brussels. English work for strength and trustworthiness is superior to that of any country. Wages, however, are in England 30 per cent. higher than anywhere else, except at Paris, although the hours differ but slightly. With regard to the

health of the women employed in glove-making, the reports are most satisfactory, leatherwork of all kinds conducing to health. There is a good deal of variety in the work, and the tailoring for the human hand is far from being drudgery. To learn the art of plain sewing an apprenticeship of from two to four months is necessary, but to become proficient in it a longer time is required. Certain districts have special aptitudes for certain kind of glove sewing. Around Torrington, in Devon, for instance, are the best prick-seam sewers in the country. Generation after generation it has been the same. There are about four yards of very close sewing in an ordinary size ten-button lady's glove, and as Messrs. Dent alone sell 12¼ million pair of gloves per annum it is easy to form some idea of the innumerable miles of stitches which are needed every year to clothe the human hand. Prices for sewing gloves vary from 2s. 6d. to 6s. 6d. per dozen, according to the nature of the glove, and whether the work is done by hand or by machine. Ten years ago it was all done by hand. Since then the machine has been steadily driving hand-sewing to the wall, but for the best gloves hand-sewing maintains its superiority. Side by side with this exhibit is another equally interesting, viz., the preparation of "Nonpareil" Velveteen, manufactured and sold by Messrs. Mann, Henry, Son, & Co., Manchester. So fine is this work that 50,000 passes with a knife over the texture are required to complete 100 yards of the velveteen, and this can only be done by hand labour, whilst in the course of dyeing the fabric goes through no less than seventy processes.

Albert Hall Annexe.—This department of the exhibition is sacred to the fair sex, and only ladies' and children's underclothing is shown here. There are nearly thirty exhibitors in this class, most of them of combination garments of various descriptions, flexible corsets, and baby linen. Miss Loader, 112, High-street, Thames Ditton (343), has a model of a young child dressed in hygienic clothing, fastened without pins, and arranged so that there shall be no pressure on any part of the infant's body, whilst an equal temperature is maintained. Miss M. Meade-King, Old Trafford, Manchester (344), shows some very pretty plain and fancy work, done by the inmates of the Ladies' Jubilee Charity School, Manchester, an institution for the maintenance and training for domestic service of poor girls, chiefly orphans. The work here has all been done by children under fifteen years of age. The only other notable exhibit in this class is that of Miss Franks, 23, Mortimer-street, who has several models dressed in the underclothing recommended to be worn beneath the "Rational" dress.

Collective Exhibition of Costume.—This collection is exhibited in the Western Quadrant, and includes a history of British civil and military costumes, hospital uniforms, fireproof dresses, &c. The various groups which represent the evolution of English dress are a source of much interest, and although the figures themselves are somewhat unsightly, the dresses have been prepared with much care. They range from the eleventh to the beginning of the nineteenth century, and the patterns have been taken from contemporary authorities—missals, statues, and portraits in oil—and have been designed by the Hon. Lewis Wingfield, R.H.A. The costumes have been executed by Auguste & Co., Wellington-street, Strand, and the wigs by Mr. C. H. Fox, Russell-street, Covent-garden. Reigns in which no important changes in civil costumes were made have been omitted altogether, but the differences which at some periods only a few short years exhibited are remarkable. The costumes in the times of Elizabeth and Charles II. are widely divergent, whilst the dress of the lower orders has remained the same for generations, and then only slight changes have taken place. Each case contains a lady and gentleman of the esquire class, and a peasant woman and artisan of the same period, and the reigns represented in each of the 19 cases are as follows:—William I., Henry I., Henry III., Edward I., Richard II., Henry VI., Edward IV., Henry VII., Henry VIII., Elizabeth, James I., Charles I., Commonwealth, Charles II., Anne, George II. (town costume), George II. (rural costume), George III., George, Pr. Reg. In the same room is also the collection illustrating the history of British military uniform, which comprises a series of figures illustrative of the mode in which the British Army was dressed at various periods of its history from the earliest times to the present day, to which are added, for the purpose of comparison, specimens of uniforms now worn by the armies of some foreign nations. The frames of these figures have been lent by the Royal United Service Institution, after having been completed with heads and hands by Messrs. Tussaud, entirely at their own expense. The armour of the early periods of the historical series has been lent by the War Department from the Tower of London; the costumes of the other periods have been furnished by Messrs L. & H. Nathan at their own cost; the clothing of the present day has been supplied from the Royal Army Clothing Depôt by permission of the Secretary of State for War, and the foreign uniforms have been lent by the Governments of the countries to which they respectively belong. In an adjoining case are uniuniforms of hospital sisters and hospital nurses, sent by the House Committees of several of the largest London hospitals. In this quadrant also Messrs. Jno. Richardson & Co., Leicester, exhibit a complete set of the most inflammable fabrics, rendered entirely and perfectly safe from fire, without any change having been made in their appearance. With the apparent object of frightening ladies into wearing sensible clothing, the Government of the United States has sent four plaster-casts representing the liver in its normal condition, and as deformed by tight lacing; and of the human foot in its natural state, and as squeezed and misshapen by the wearing of small and improperly-made boots. There is also an interesting collection, showing the relative warmth of various materials used as clothing. A thermometer is affixed to each garment, and, taking the amount of heat lost in a fixed time by a naked body at 100°, these thermometers indicate the quantity of heat retained by each fabric. Judged by this standard, the warmest material in this collection is a black-knitted woollen jersey; whilst that which retains the least amount of heat is an undershirt made of Lisle thread.

A solemn old scientist printed the fact that by bathing the feet in tepid water a man could double his circulation, and now all the Chicago editors are having tanks fitted to their office stoves.

At a meeting of the Metropolitan Asylums Board held in London last week, a Mr. Kemp stated that the reason why small-pox was so prevalent in the Homerton part of Hackney was that the houses were built on a soil "made up" of the festering refuse of London. If this statement as to the nature of the soil be correct, we should incline to agree with Mr. Kemp in his conclusion. "Horrible London," and, indeed, "horrible" anywhere else, is a fit name for dwelling-houses built on "made-up" soils. The "free toom"—as the builder's pit is named in the north—is an institution which, for the credit of nineteenth-century science, should be extinguished by law.

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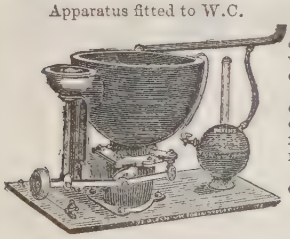

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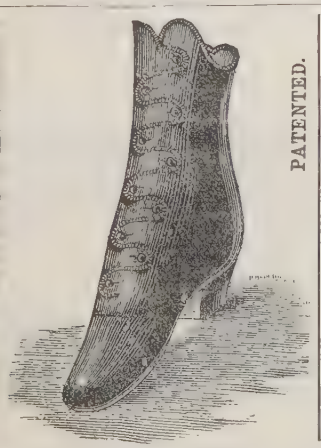

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SIXTH NOTICE.

GROUP III.—THE DWELLING HOUSE.

CLASS XX. (Dwellings, models, and designs for the same, and specimens of buildings erected in the grounds; fittings and necessaries for dwelling-houses; completely fitted apartments).—This is the first class of the most interesting, educational, and practically useful group in the whole exhibition—a group, too, which requires more careful examination at our hands than any of the others. The first stand (375) is occupied by Mr. Henry Conolly, Drummond-street, Hampstead-road, and Tolmer's-square, N.W., who has a perfect museum of articles of domestic sanitation. Attention is first attracted to a completely-fitted bath-room, with its walls decorated by hand, and its carved and beautifully-fitted bath. The room is ventilated by means of perforated cornices connecting with horizontal and vertical tubes communicating with the pure air outside. The room is illuminated by gas, which, being lighted before the bath is used, has a powerful effect in carrying off the hot air and steam through the ventilation holes just alluded to. The bath itself is fitted with a series of twin valves for hot and cold water, the valves being so arranged as to be within the complete control of the bather, who can thus turn on a hot or cold douche, shower, or fountain. The shower is directed not only from the top, but from the sides of the head of the bath, and the sitz valve, as it is called, sends up an ample supply of water from beneath. The ordinary filling and waste taps are at the foot of the bath. The room is decorated in the Pompeiian style, and is lighted, as, indeed, is the whole of the stand, by some very elegant gaseliers, arranged so that the electric light may be fitted upon them with a minimum of expense and inconvenience. The other exhibits of this class include a variety of washstands for office and library use, as well as some very ingenious concealed urinals and lavatories so contrived that the use of the latter effectually flushes and cleanses the former. In appearance and in usefulness these "concealed lavatories" are among the best of their class in the exhibition. Mr. Connolly is also the maker of the "Nestor" patent valve-closet. It is made of earthenware, and its overflow pipe is securely trapped so as to prevent the ingress of sewer gas to the house. In these closets, too, the pipe is brought above the floor level so that when repairs are necessary it is within easy reach of the plumber. In connection with this closet Mr. Connolly exhibits a cistern which allows only sufficient water to enter the closet to thoroughly flush the pan; this cistern has been approved by most of the London water companies. Messrs. Collinson & Lock, 109, Fleet-street, have erected and furnished (377) a reception-room and bedroom in an extremely elegant style, and with the greatest regard to health. The ceilings are of plaster and the wall decorations are also of plaster and washable papers. Next door (378) Messrs. Jackson & Graham, 84, Oxford-street, have built, from designs by Mr. R. W. Edis, F.S.A., a suite of three apartments—bedroom, dressing-room, and bath-room with a little ante-room and landing. The problem which Messrs. Jackson & Graham have set themselves to solve, is how to provide the greatest amount of convenience and comfort in the smallest space, and they have succeeded in bringing before the eyes of visitors to the Exhibition one of the prettiest examples of modern furnishing we ever saw, and, withal, a charming little suite of rooms, in every detail of which hygienic and sanitary considerations have had the first place. Cleanliness, cheerfulness, and a quiet simplicity are the distinguishing characteristics of the decorations. The woodwork is painted white, the wall-paper and hangings are of a red pattern on a light ground. The floors are stained and varnished, and covered with loose rugs of such a size as are easily removed and shaken by one person. The wood fittings are all designed with a view to the greatest economy of space and least possible harbouring of dirt. There are no flat spaces for collection of dust over wardrobes, drawers, or bed-head, as the wardrobes, drawers, and cupboards all form the wall surfaces of the room, continuing right up to the ceiling. The cornice mould is continued round as a hood over the bed-head to receive the valance and curtains, and also forms a projection over the windows for the same purpose. The washstand is a fixture, with fixed waste cistern below for ready removal, or with pipes running to the drain. The two wardrobe doors, with long mirrors, are so arranged that both open together will enable one to survey his dress complete. At one side of the fireplace is a fixed hopper for the coal-box, and at the other a little drying cupboard for damp clothes, itself ventilated by a hit-and-miss ventilator. In the dressing-room there is a spare bed, and also a fixed writing-table, above the centre of which is a pretty stained-glass window, surrounded by useful shelves and cupboards. At either side of the little angle fireplace is a fixed seat, with boot recess and cupboard under, suggestive of the comfort and cosiness of the old-fashioned fireside settle. In front of the fire is a towel-airer, and near by a reversible seat, such as makes a useful little carpeted step-ladder by means of which the higher cupboards may be reached. In the overmantel is fixed a pierced brass projecting frame, inclosing a bevelled mirror, which is surrounded by a band of opaque glazing. Within this it is intended to fix the electric light, which will thus produce a pretty effect through the glass and open brasswork. The windows have casements in the lower two-thirds of the space, and above that leaded lights in geometrical pattern, with amber, white, and blue-grey, which fall backwards like a hopper by means of Elsley's lever fanlight openers. The bedsteads are in brass, of the firm's own design. Through into the bath-room, we find the same cleanly paper and paint; a fine bath by Conolly, hooded over, with eight valves for douche, shower, spray, sitz, plunge, cold and hot, and wash; a recessed seat in the wall opposite, so saving space; and out at the further end a w.c. The form of apparatus used is known as the "safety-valve" closet, wherein the water seat is always pre-

served; it is flushed from the rim from 1¼-in. service-pipe. This apparatus is so made that the syphon can be fixed on to discharge in any direction which may be found best for direct access to the drains. The fitting of the seat, &c., is carefully designed. The opening of the seat throws back a lid, which is always moved securely over the pan whenever the lid is down, thus forming a preventive of the escape of smell into the house. The underside of the lid, which forms a back when up, is lined with morocco, as are also the sides of the seat. On the right is a paper-box, so arranged that the pieces work continuously to the top as each one is extracted.

Another very interesting exhibition of much the same class is that of Messrs. Jenks & Wood, 65, Holborn Viaduct, whose decorations and furniture are of the most artistic designs, as well as being harmless, from a health point of view. All the materials employed are washable. In one recess the walls are panelled a third up by oak dado, and covered above by an embossed Renaissance paper in shades of gold and vellum—a beautiful design. In another recess the appointments are of the drawing-room order, the dado, mantel, and ceiling being white, and the wall covered by a soft red flock paper. The mantel is an excellent specimen of wood-carving. The same delicacy of colour and carefulness in detail is noticed in the other half of this stand where Messrs. Jenks & Wood have furnished a sick-room and fitted it with all the appliances necessary in an apartment of the sort. In this room, the skirting, instead of meeting the floor square, is rounded down to it by a hollow mould, so that the junction of wall and floor is as easily kept perfectly free from dust as is any plain surface. The architrave moulds and the dado mouldings are all finished so that a touch with a brush or duster will cleanse them instantly and thoroughly; the framing of the drawers is rounded at every angle, and so on throughout. This "sick-room" is fitted with an iron bedstead and wire-wove spring mattress capable of easy adjustment. A flat, unyielding surface for "fracture" cases may also be readily provided by means of loose boards laid over the spring mattress; the hair mattress is laid here as most conducive to health. The bedstead rests on solid india-rubber castors. The furniture is minimised in amount by the adoption of one "combination" piece, including fixed towel-rail, swivel mirror on the back, tiled back and marble top for basins, open recess in front for brushes, as well as long and short drawers; the piece stands open to the floor on castors, so that it may readily be swept under. The commode is divided into two parts, the upper of which may be used for boots, and the backing of these two boxes is formed of laths for the escape of smell. The back is made with top shelf for use as a book-rest. The other furniture consists of a small table with folding flaps and leather wheel castors, an easy chair with high back and two *side* head-rests, chairs with bent and perforated birch seats, a hanging medicine cupboard, and a threefold screen, covered with washable cretonne. That Messrs. Jenks & Wood have been successful in this department of their business may be readily inferred from the fact that they have been engaged in fitting several home hospitals, including the Fitzroy House Home Hospital, and a similar institution at Mildmay Park.

Messrs. Hindley & Son, 290, Oxford-street (380), will not fail, also, to attract attention to their stand which consists of a completely furnished apartment, with wood-panelled dado, frame-work, and ceiling, and oak parquet floor, the walls being hung with washable Japanese leather-paper of choice designs. The handsome painted wood mantel harmonises well with the old mahogany furniture. The next stand (381) is of a very different character, and contains a goodly collection of wicker furniture—chairs, lounges, work and tea tables, baskets, &c.—made by Mr. W. B. Hovell, of St. Andrew's Basket Works, Norwich. Mr. John Stones, Ure Mills, Ulverston (382), has some exhibits which will repay attention. First is a movable sound-proof mirror for dwelling-houses, schools, &c. This useful invention consists of a series of panels which swivel and fold into pilasters or recesses in the walls, and which ought, by its simplicity and thorough effectiveness, to take the place of the ordinary folding doors in small houses. Next is a revolving shutter, fitted at each joint with india-rubber, and made with an ascending, descending, or vertical motion; and, lastly, there is exhibited Stones' Patent Draught Excluder, a wooden flap which is fixed to the bottom of the door, and being padded, fits exactly the shape of the door-step. When the door is opened, the flap lifts about three-quarters of an inch, so as to clear the carpets or oilcloth. Mr. Edward Allen, 111, Cheyne-walk, Chelsea (383), exhibits a model cottage, for the purpose of showing the improvements which he has carried out in portable corrugated-iron dwellings. These improvements consist partly in improved construction and partly in improved design, one of the objects of the builder being to do away with the cold, comfortless, temporary look which all iron structures have hitherto possessed. The principles upon which Mr. Allen constructs his buildings—and his system is adapted to every class of structure from a hunting-box to a fisherman's hut, or from a church to a fish market—is very simple. The timber quarterings over which, in ordinary corrugated iron structures, the sheets are fastened, are on the improved plan, divided—one half being placed behind the iron sheets, and the other half in front of them, the outside timbers being planed, and having their corners chamfered. These quarterings, occurring at the junction of every pair of sheets, form a perfect joint, the plates being lapped or butted, and the two quarterings firmly screwed or bolted together, the outer one being painted or stained and varnished in contrast with the iron or zinc, which may also be painted if desired. Thus, no laps or joints are visible in any part of the structure except in the roof, the effect of the external timbers being that of a timber-framed house or building, with corrugated iron panels, having a pleasing, and decided Swiss character. The inside of the building is, as usual, match-boarded, and the space between the iron and the lining filled in with sawdust (as in the Government contracts), silicate cotton, asbestos, or other material, either in substitution of, or in addition to, the usual felt lining; thus rendering the buildings as warm in winter and as cool in summer as a brick structure, 1½ in. of some of these materials having been found by experiment to be more efficacious in resisting heat and cold than 9 in. of brickwork, besides stopping the transmission of sound. The next two cases are filled with specimens of locks and fastenings, Messrs. Chubb & Sons, Queen Victoria-street (384), and Messrs. Joseph Kaye & Sons, 93, High Holborn (385), being the exhibitors.

Mr. Robert Adams, 17, Blackman-street, Borough (386), is one of those ingenious inventors of articles of daily utility who do so much to add to our stock of smaller conveniences; and he has here a stand full of interesting patents. First is his anti-accident window, which admits of every part of both sides of the glass being cleaned from the inside of the room. The design is of the simplest possible description, and the window, whilst it can be slid up and down for ordinary use, can be made to work on a swivel fixed in the centre of each sash, so that the outside of the glass may be reached from the room. The upper sash can be lowered to the level of the window-frame, thus rendering it unnecessary to stand even on a

stool whilst the window is being cleaned. A consideration of the danger involved in the practice of cleaning windows at the top of a house from the outside sufficiently proves the great utility of this simple contrivance. Another of Mr. Adams' invention is a fanlight-opener, of which the only mechanism is a folding brass rack. These fanlight-openers have been fitted with much success in several hospital and other public institutions. Mr. Adams also shows his "panic door," which has been invented to insure instant egress in the event of fire or alarm, and to prevent panics in crowded buildings with their attendant fearful calamities. The fear of such audiences will be removed where this invention is known to be in use. It is simple in construction, while its fittings are certain and secure. It consists of a vertical sliding counterpoised door, which immediately ascends of its own accord into a prepared recess the instant a handle is turned at the side of the door. This handle is covered by a small glass door, and a corresponding handle may also be turned on the outside of the building, thus giving double security. The glass door may be either opened on its hinges or smashed as are the street fire alarms in case of need. This panic door has the eminent approval and strong recommendation of the Lord Chamberlain's officers. The "Norton door-check and Spring," for which this exhibitor is the English agent, is a great improvement upon anything of the kind we have hitherto seen. It is almost human in its action, and instead of slamming a door, it closes the door quickly until it is nearly shut, when it is brought to a stop for an instant, and then is quietly and safely latched. This is achieved by the provision of an air piston as well as a spring. When the door is opened air enters the cylinder, and when the spring closes the door the air is gradually exhausted, so that the closing is effected without a violent slamming.

Mr. Phillip Born, 29, Tavistock-road, Westbourne-park, exhibits (387) an Improved Patent Folding Lattice Shutter. It has for its object the better guarding of windows and doors of private houses, offices, warehouses, and shops, where space, security, and ventilation is a great object; and for providing a more efficient and simple means of protection than the ordinary revolving and other shutters hitherto in use. The lattice shutter consists of two wings of equal size, each of which is composed of a number of perpendicular flat iron bars crossed by a number of short horizontal bars strongly riveted together. The perpendicular bars are regulated in length to the height of the door or window, and are placed at equal distances from each other; the principal perpendicular bars run upon wooden rollers upon the window board or door sill. The lattice is fastened in a suitable manner to the brickwork or panels right and left of the door or window to be protected. The lattice is locked in the centre also near the top and bottom. The bars are of wrought-iron $\frac{3}{4}$ in. wide, and $\frac{1}{4}$ in. thick, but can be made in any other strength or metal if desired. The advantages claimed for these folding lattice shutters over ordinary revolving and other shutters are that they are much cheaper; can easily be fixed anywhere without any alteration to existing brickwork or panels, and in the smallest possible space; that the windows can be left wide open, thereby admitting light and air, at the same time protecting the room against burglars; and that they are excellently adapted for nurseries in upper storeys. The agents for these shutters are Messrs. Rownson, Drew, & Co., 225, Upper Thames-street.

Dr. A. W. Blyth, the Medical Officer of Health for Marylebone, and Dr. Richard Greene, Medical Superintendent of the Northampton County Asylum, send a model and accompanying plans of a house to be let out in tenements. The model consists of one room used first as a living and then as a sleeping-room. During the day the apartment presents the appearance of an ordinary room of its class, but when bedtime comes there is an ingenious contrivance by which two partitions, half the height of the room itself, are let out of the walls, where also are stored the bed-clothes of the family. These partitions divide the room into three small compartments, the centre one occupied by the father and mother, the girls sleeping on one side, and the boys on the other. This model is well worth the attention of those interested in the housing of the very poor. The plan, whilst it does away with the objectionable practice, too common in the metropolis, of whole families sleeping in an indiscriminately mixed condition in one room, does not deprive the inmates of a single inch of cubic air during the night. Mr. James Moore Lucas, Ennerdale-road, Selwyn Park Estate, Kew Gardens, sends (389) a model of a very pretty private residence constructed upon perfect sanitary principles at Kew. The house is now ready and open for the inspection of any one who may care to take a journey to that pleasant suburb and present his card. Another ingenious model is sent by Mr. Mathias J. O'Keeffe, M.I.C.E.I., 40, Holbeck-road, North Brixton (390), and represents four sanitary houses, erected at the corners of two important intersecting thoroughfares, and connected with each other by light bridges. The houses would afford a means of escape in case of fire for the inmates of adjoining tenements, whilst the bridges would do much to minimise the dangers of crowded crossings. Mr. O'Keeffe's idea is that the lower parts of the houses might be utilised as telegraph, telephone, post, and parcels offices, whilst the first-floors could be used as waiting and retiring-rooms and the other rooms let out in tenements. Lieut. J. R. Turnbull, the Priory, Torquay (391), forwards a model of the "skeleton" of a London house, showing how the drains should be ventilated and carried under the house from the back to the street sewer on the "open system," and another model of a length and section of a drain laid according to that system. To Mr. A. Allen, Cheyne-walk, Chelsea, whose improved iron buildings we have just noticed, we are indebted for two models (393 and 394). The first is of a labourer's cottage, intended to illustrate a special improvement in that class of dwellings, viz., by substituting for the ordinary combustible partitions between the rooms the use of non-combustible partitions constructed of wood quartering, coated with silicate paint, and filled in with slate panels. The second is a plan and model of a miner's cottage. The noteworthy improvement here is that of keeping the fireplaces or sources of heat in the centre of the building, and away from the outer wall—thus to avoid all loss of heat. The model also exemplifies the possibility of adapting architectural forms to such structures. Mr. W. J. Penny, Sidmouth-street, Gray's-inn-road, shows (396) his double-action sashes and frames with inlet and exhaust ventilator. The sashes run up and down, or open on a hinge like a door; and as the upper sash can be lowered, all the window can be cleaned from inside the room. The window is also provided with a ventilator, either for admitting fresh or carrying off vitiated air. Mr. J. D. Tucker, the Parade, Bromley, Kent, exhibits (397) another style of window, which he says is perfectly air and dust-tight, cannot rattle or shake, and work more freely than any other class of window in the market. Indiarubber cushions are fixed in the top, bottom, and meeting rails of sashes, which fit into hollows, sunk in window head and sills, the meeting rails are also made to fit, and the runners or parting beads are screwed to the pulley stiles, and so constructed as to fit into the sashes.

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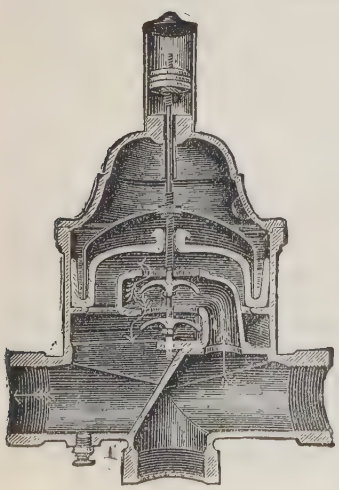
Messrs. William A. & J. Smee, 89, Finsbury-pavement (401), illustrate, in a very pleasing manner, the furniture and decoration of a boudoir and bed-room, special attention having been paid to health requirements. The woodwork and fittings in the former are finished in white, an elegant paper by Jeffrey & Co. covering the walls. A feature of the room is the formation of a cove, in place of cornice, by two or three variously inclined planes, separated by wood strip mountings, and is intended to promote a change and improvement in the upper air of the room. There are no flat surfaces over the cabinet or mantel-hoods, so that these may be easily kept free from dust. In the bedroom the whole of the fitting and furnishing is bound together by means of the continuous wood moulding below the frieze and the skirting mould, each of which is made to work into the design of the fixtures of the room. One side of the room is occupied by the wardrobe in the centre, the coved recesses on either side holding fixed lavatories. On the opposite side to this is an ingle nook recess with box seats (with sliding lids) at each side of the fire, and a quaint leaded light window over the mantel. Little book-shelves are conveniently placed over against the seats. The dressing-table is furnished with a movable electric lamp standard for toilet use. The cabinet work in this apartment is executed in walnut framing with rosewood panels, all the panel mouldings being worked out of the solid framing, and the lavatories are lined with some beautiful pieces of Sienna marble.

It is said that the tooth manufacture of the United States amounts to 10,000,000 teeth per annum. There are twelve manufactories, but one of them, founded in 1864, makes half the number. The value of these teeth is a million dollars. The materials of which they are composed are feldspar, kaolin, and rock crystal.

Japanese Camphor.—The following account of the camphor industry of Japan is extracted from the interesting report by the American Consul at Nagasaki. "The manufacture of camphor is an important industry on the Island of Kiu Shiu (Kew Shew). From the port of Nagasaki there were exported in the year 1882, 15,186·18 piculs, valued at 227,792 dollars. A picul is 133⅓ lb. From other ports of the island not yet open to foreign trade, a large quantity was shipped by native merchants in native vessels to Shanghai in China, and Hong Kong, whence it finds its way to India and England; little or none of it is exported to the United States. The camphor tree grows abundantly over all this portion of Japan. It is found alike on high elevations and in the valleys and lowlands. It is a hardy, vigorous, long-lived tree, and flourishes in all situations. Many of these trees attain an enormous size. There are a number in the vicinity of Nagasaki which measure 10 and 12 ft. in diameter. The ancient temple of Osuwa at Nagasaki is situated in a magnificent grove of many hundred grand old camphor trees, which are of great age and size, and are still beautiful and vigorous. I am told that there are trees in other places in Kiu Shiu measuring as much as 20 ft. in diameter. The body or trunk of the tree usually runs up 20 and 30 ft. without limbs, then branches out in all directions, forming a well-proportioned, beautiful tree, ever green and ever ornamental. The leaf is small, elliptical in shape, slightly serrated, and of a vivid dark green colour all the year round, except for a week or two in early spring, when the young leaves are of a delicate tender green. The seed or berry grows in clusters, and resembles black-currants in size and appearance. The wood is used for many purposes, its fine grain rendering it especially valuable for cabinet work, while it is used also for ship-building. The roots make excellent knees for ships. I have sent many seeds of the camphor-tree to the United States, in the hope of adding to our own arboriculture. In the manufacture of camphor the tree is necessarily destroyed; but, by a stringent law of the land, another is planted in its stead. The simple method of manufacture employed by the natives is as follows:—The tree is felled to the earth, and cut into small pieces, or, more properly speaking, into chips. A large metal pot is partly filled with water, and placed over a slow fire. A wooden tub is fitted to the top of the pot, and the chips of camphor wood are placed in this. The bottom of the tub is perforated, so as to permit the steam to pass up among the chips. A steam-tight cover is fitted on the tub. From this tub a bamboo pipe leads to another tub, through which the enclosed steam, the generated camphor, and oil flow. This second tub is connected in like manner with a third. The third tub is divided into two compartments, one above the other, the dividing floor being perforated with small holes to allow the water and oil to pass to the lower compartment. The upper compartment is supplied with a layer of straw, which catches and holds the camphor in crystal in deposit as it passes to the cooling process. The camphor is separated from the straw, packed in wooden tubs of 133⅓ lb. each, and is ready for market. After each boiling the water runs off through a faucet, leaving the oil, which is used by the natives for illuminating and other purposes."



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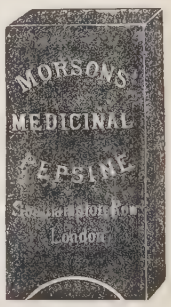

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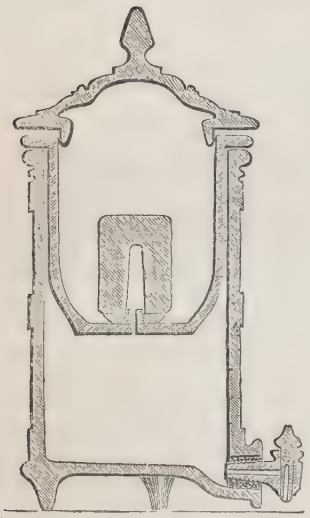
The pavilion is entered by archways in the centre of each front, and contains inside at each angle a different sample of fireplace decoration, either entirely in ceramic ware or in a combination of that and woodwork, suitable for boudoir, dining, or drawing-room. First is a green glazed fireplace suggested for drawing-room use. The healthful feature of such a fireplace is the absolute cleanliness of it, and also the fact of the fire being placed forward on the hearth in such a manner that the heat is reflected from the side splays and hood front. In the brown glazed fireplace of the "Register" pattern, there is a continuous splay all round the fire, admirable for reflection of heat. Another very pretty fireplace in this pavilion is one surrounded by wood shelving and overmantel, which illustrates a capital combination of wood and ceramic, both as to form and colour. Within the pavilion the fillings of the curved surfaces leading up to the eye of the dome are painted under glaze on 6-in. flat tiles, fixed to the ground by brass pins. The colour in some of these spandrils is very pleasing. Around this centre pavilion are four stands, on which are displayed a variety of building and sanitary appliances. The first of these is fitted up as a bath-room, and contains a handsome bath of porcelain, with a locking apparatus to the valves, so arranged that the waste-pipe cannot be opened and the supply-valves turned on at the same time. Another very useful exhibit here is the Lambeth Instantaneous Water-heating Apparatus, by which water sufficient for a bath may be sufficiently heated in ten minutes. The method adopted is extremely simple, the water, on entering the cistern, being passed over a series of pipes arranged in a winding manner. These pipes are heated by gas; so arranged that the smell of the gas cannot be imparted to the water, as is the case in many inventions of the kind. The cistern is connected with the water-supply of the house, and cannot run dry so long as there is water in the house-cistern. There is thus no danger of the gas being left to burn holes in an empty vessel. Here also is exhibited a watercloset of improved manufacture, of which we append a sketch. It will be observed that the pan is made of ornamented stone-ware, and that the lid may be easily lifted in order that dirty water may be thrown away, or that it may be utilised as a urinal. It is fitted with a vacuum cistern, and a seat-action apparatus which will work even with a child of thirty pounds weight, the cistern discharging two gallons of water on the user leaving the closet. This closet has the advantage of being simple, cleanly, and almost impossible to get out of order; whilst the apparatus itself may be readily and cheaply applied to any closet. In the second stand Messrs. Doulton show a collection of open fireplaces on slow-combustion principles; open portable fire-stoves to fix to any fire opening; close portable fire-stoves; glaze mantelpieces; tile hearths and fenders; terra-cotta dado tiles; and medallions in glazed framework. It is needless to add that all the decorative work is executed in the highest style of art. The third stand has great interest for all interested in the question of the water supply, for here is a comprehensive collection of filters. In a circular issued by Messrs. Doulton—who, by the way, are the oldest and most extensive manufacturers of water filters—they say that a series of experiments extending over three years, undertaken for them by Dr. Albert J. Bernays, F.C.S., has resulted in the introduction of the Patent Manganous Carbon Filter. Premising that, chemically, pure water is neither obtainable in nature nor advantageous for drinking, the things which should be removed for health's sake are:—Solid mineral matters, solid organic matters, dissolved mineral and dissolved organic matters, and actual disease germs, animalculæ, &c. "Furthermore," say Messrs. Doulton, "it may be laid down that the natural process of purification of water is a process of oxidation. How far rivers and streams become spontaneously purified in their flow by this means is yet a vexed question. But it is certain that burning up, or oxidation, is the normal method of getting rid of offensive matter. A filter, then, should be composed of an oxidising medium. Charcoal, from its property of condensing oxygen within its pores — such oxygen being, by the condensation, brought into an exceptionally active state—and by its power of giving up that oxygen to organic matters, so as to burn them up and destroy them, has long been known as the simplest and most effectual material for filtration. Vegetable charcoal is distinguished for deodorising power; animal charcoal for

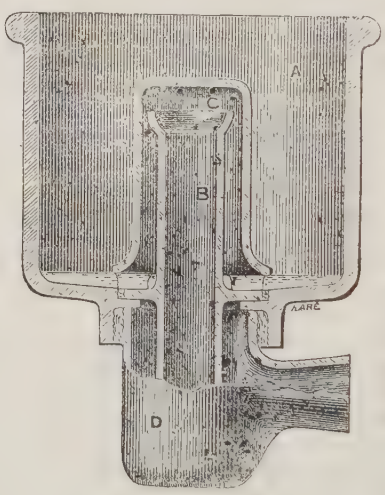
its bleaching or decolourising properties; hence a proper mixture of these two should yield the best effect in purifying water. But crude charcoals, as met with in commerce, contain many impurities." Acting, therefore, upon these main principles, Messrs. Doulton have introduced the Manganous Carbon Filter, of which we show a section. Its simplicity of construction is apparent. Indeed, there is nothing in it but a block of manganous carbon, the whole of the rest of the filter being made of stoneware, so as to be easily taken to pieces, whilst the lower reservoir is so arranged that the water drains off, and cannot remain stagnant. With the object of rendering the charcoals pure in the Manganous Carbon Filter, each grain of the medium receives a coating of manganese dioxide, and is then re-



burnt at a high temperature in absence of air. By this means the hydrogen-bearing impurities are oxydized and removed. At the same time the manganese dioxide is reduced to a lower oxide. These lower oxides rapidly re-absorb oxygen from the air, becoming again converted into hydrated dioxide, which in its turn yields oxygen to the organic matters, present in the water. Thus the manganese acts as a carrier of oxygen from the air to the impurities in the water, oxydising or burning up the latter, and then again becoming revivified by the atmosphere. Manganese also exerts a preventive influence on the growth of organisms, the result being that the charcoal, purified by the treatment, and increased immensely in oxydising power by the carrying action of the manganese, acts better and lasts longer than any ordinary charcoal could. This was proved by one of the early experimental filters of manganous-carbon, which ran for two years with ordinary water, and then, on taking to pieces, showed the charcoal perfectly sweet, and with no objectionable appearances under the microscope. The organic impurities had evidently been burnt up, not simply separated by straining; in the latter case they would have remained in the charcoal. An ingenious application of the principle of these filters to the purposes of an army on the march is shown at this stand. It consists of an india-rubber tube and mouthpiece let into the interior of the carbon block; the latter has only to be dipped into any pond or stream, and pure water may be drawn by suction through the tube. Another development of the same idea is to be found in the "Manganous Carbon Refrigerator Filter," which is provided with an ice chamber on

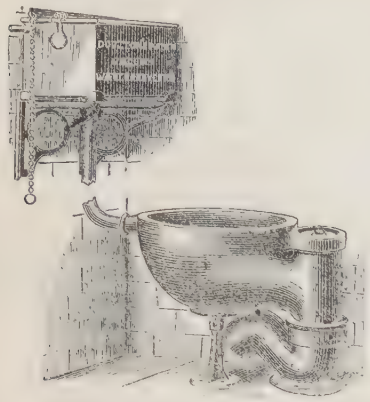
either side of the space for unfiltered water. Yet another step in the process of development is shown in the "Cistern Filter," which may be best described by referring to the accompanying sketch. A shows the pipe leading from the house tank; B, the ball valve; C, the partition of patent manganous carbon filtering media, through which the water passes in process of purification; D and E are the outlet-taps for filtered and unfiltered water respectively (both these taps are placed below the bottom of the filter, so as to allow no stagnant water to remain); F F and G G are the brackets and ears supporting the filter; and H the zinc cover, with perforated holes for ventilation. At this stand also are shown a number of stoneware manufactures for domestic use, for chemical purposes, and for the laboratory. Another filter remains to be described before we leave this stand. The new Patent Granular Charcoal Filters are an improvement on the old style of similar filters, the sponge being dispensed with, and its place supplied by a block of manganous carbon, A (as shown in illustration), which is screwed on to the upper plate of the filter, the joint being made watertight by the use of two ground surfaces held together by a stoneware screw.

The fourth stand is devoted to the display of sanitary appliances in action. The two main principles on which these varying appliances are made are the Automatic Flush Tank and the Vacuum Water Waste Preventer. The former is here shown. It provides an effectual means for keeping the drains of a house constantly and efficiently flushed, a very important matter when it is considered how quickly accumulations form in the drains, choking them and emitting impure and dangerous gases. By the use of these tanks, small discharges of water, from baths, sinks, and rain-pipes, which would otherwise be powerless to cleanse the drains, are collected and automatically discharged with great flushing force. Where



intended to discharge at fixed periods, such as for flushing urinal basins, or trough urinals and closets, clear water is used, and this is obtained through a small inlet tap, which may be adjusted so as to admit of the tank so discharging. The action is as follows:—The discharge from the sink passes into the tank, A, and thence into the partition C, where of course it maintains the same level as in A. When the water reaches the top of the pipe, B, the syphon action is set up, the trap, D, is forced, and the whole of the water is drawn rapidly into the drain. Messrs. Doulton also make another variety of this tank containing a grease interceptor, which prevents all floating fatty matter from entering the syphon, and allows of the grease being periodically removed. The Vacuum Water-waste Preventer as applied to the flush-out closet is shown here. The mechanism is so extremely simple that it is hardly possible for it to get out of order. An instantaneous jerk of the chain ensures the full discharge of a two-gallon flush, the

last portion of the discharge, owing to the air pressure in the tank being more as the amount of water decreases, being of greater force than the first. These two inventions are applied in this fourth stand to an infinite variety of closets, urinals, &c., adapted to the requirements of the smallest home or the largest public building. Those who have the management of workhouses, hospitals, and other like institutions, would derive great advantage from an inspection of this portion of Messrs. Doulton's collection—a collection which adds much to the value of the International Health Exhibition, and which does great credit to the enterprise and inventiveness of the well-known Lambeth firm. We may mention that all the retiring-rooms in the exhibition have been fitted, as they were at last year's Fisheries, by Messrs. Doulton and Co.



Of the several model kitchens which form part of this class, the most complete, as it is the most pretentious, is undoubtedly that of Mr. Geo. Kent, High Holborn (404). His "model kitchen, scullery, and wash-house suitable for the middle classes" has the disadvantage, it is true, of looking too crowded, but it must be borne in mind that the space at the disposal of the exhibitor is limited, and that if all the domestic and labour-saving machines here shown were placed in a decent-sized kitchen there would be a more orderly arrangement. As it is, if a "plain cook" were placed here to prepare a dinner she would be sorely perplexed, we fear, as to where to begin and what to do first. However, all this does not detract from the real worth of the many ingenious articles to be seen at this stand. The kitchener is a specialty of the exhibitor, and may be used as a close or open fire range. It is fitted with a wrought iron oven, ventilated for washing and baking, and mounted with a meat-rack, double drip-pan and fret, a wrought iron circulating boiler for hot water service to bath, a hot closet, lavatories and sinks. The kitchener has a regulating fire bottom, and an ash-pan sifter, and the bars can be readily removed, so that meat may be roasted as by an open range. A hot-closet, heated from the boiler, stands on one side of the fireplace and a gas oven at the other. The kitchen utensils are of welded nickel silver, a combination of metals which possesses great advantages over iron, iron enamel, or copper; and there are an almost endless variety of bread-cutting, potato-peeling, pea-shelling, mincing, and other domestic machines, together with presses and safes in great number. In the centre of the room is a kitchen table, in the frame of which, hanging on pivots, is a large and strong mangle. This, by a mechanical arrangement, may be turned up above the level of the table, and a handle being fixed in the side, the mangle is ready for use. In the scullery is a portable copper, a washing and wringing machine, a clothes dryer, a carpet-sweeping machine, and a cinder-sifter and portable dustbin combined, which, after separating the cinders from the ashes, delivers the former into a scuttle ready for use. On the same stand Mr. Kent exhibits his water-filter, which is worked on the ascension principle. The filtering medium is a somewhat coarse preparation of animal charcoal, and is placed at the bottom of the filter. The water is poured in from the top, and makes its way up through the charcoal to the middle of the filter, whence it is drawn off by a tap in the ordinary way. Here also is exhibited the albo-carbon gas-light, in which the gas is purified by passing through a globe containing a preparation of naphtha.

Mr. T. J. Constantine, 61, Fleet-street, also has a model kitchen (407), suitable for the artisan's household. A pretty and handy "Treasure" range, fitted into a tiled recess, and a collection of plain and scrupulously clean kitchen utensils, give the place a clean, wholesome, and altogether homely appearance. The walls are prettily and neatly papered by Messrs. Woollams & Co.

The other model kitchen is fitted by Messrs. Brown & Green (Limited), Finsbury-pavement (406), who draw attention mainly to their patent smoke-consuming kitcheners, which gained honours, both at the Smoke Abatement and National Health Society's Exhibitions. All their kitcheners are formed on the underfeeding principle, which, it is well known, is the most cleanly and the most economical. We cannot do better than quote the report of the Jurors of the Smoke Abatement Exhibition:—"Of the arrangements for direct under-feeding, that of Brown & Green appeared to be the best from a practical point of view; and it also gave the best results in the testing of any grates for bituminous coal. We have, therefore, recommended it for a gold medal." These kitcheners are made either for the mansion or the cottage, and in all sizes, down to two feet six inches long, they are fitted both with oven and boiler, but the 2 feet size is only made with the oven. In all cases the small trough in which the fresh fuel is placed is at the bottom of the bars in front, whence it is pushed forward by means of a hoe-shaped raker underneath the burning coals. The shape of the fire basket is rounded, and rises slightly from front to back, which renders the action of pushing the fresh coal forward an easy matter, and as the covers on the top of the range would have to be removed to feed the fire at that spot, the insertion of the fuel from the bottom is the easier of the two. The firm also show here a number of ornamental drawing, dining-room, and other stoves, all of tasteful design, but each having some special feature of its own. The "Kensington" stove, for instance, is designed for burning ordinary coal, and when the fire requires a fresh supply the coal is put in the front trough, and deposited under the incandescent fuel by a shovel sent with the stove. By replenishing the fire in this manner the smoke from the fresh coal has to pass through the red fire above, and is thus consumed. The "Luton" stove is fed from above, the bottom being curved and rising at the back, so facilitating the radiation of heat into the room, and increasing the area for the admission of air to the fuel. The flue is at the back, the mouth of it being close to the top of the fire with a projecting fire-brick in front. Near the top of the flue is a damper with a cranked rod and knob; when this damper is drawn forward the *flue* is *opened*, and the register door is *closed* with the exception of sufficient space for ventilation; and when the damper is *closed* the register door is *opened*, and the products of combustion pass through it direct to the chimney, the drawing forward or closing of the damper acting automatically, and thus controlling the direction of the draught. Then, again, the "Finsbury" Stove is differently constructed to either "The Kensington" or "The Luton." A fire-brick overhangs the grated back of the fire, which has a solid brick or iron bottom. A little below the bottom is another plate, with a space between the two, forming a hot-air chamber. This chamber is open in front, and communicates with the

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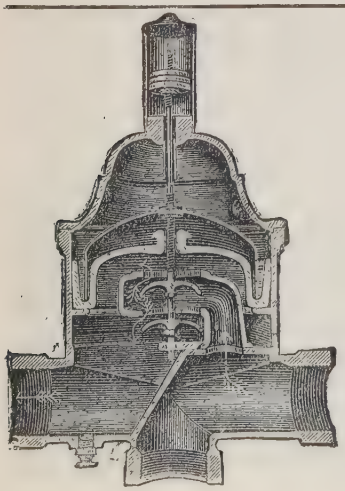
grating at the back; a constant current of air passes through this chamber, and becomes highly heated in its passage, and in this state is discharged through the grated back into, upon, and over the top of the fire—the result being perfect combustion, thorough smoke consumption, great heating power, and an exceedingly cheerful fire. People who take an interest in the subject of smoke abatement will find Messrs. Brown & Green's stand well worth a visit and a careful inspection.

International Health Exhibition, London, 1884.—International Conference on Education.—The Conference will be opened on Monday, Aug. 4, at 11 a.m., and will continue throughout the week. A complete programme will be issued shortly. The subjects for discussion are:—1. Conditions of Healthy Education. Under this head may be included—the consideration of the structure, fitting, and equipments of a school; gymnastics, and other physical exercises; the right apportionment of time to different subjects of instruction in schools of various classes; the indirect effect of pictorial or other decoration in improving the taste and cultivating the imagination, and in increasing the scholars' interest in their work. 2. Infant training and teaching: *a.* Kindergarten. *b.* Instruction generally. Under this head may be included—the right structure of schools and class-rooms for very young children; the apparatus needed for play and for instruction; the exercises, mental or manual, best fitted to awaken the faculties; the distribution of time; pictures, collections of objects, &c. 3. Technical Teaching: *a.* Science. *b.* Art. *c.* Handicrafts. *d.* Agriculture. *e.* Domestic Economy. Under this head may be included: (*a*) methods of teaching the different branches of physical and of natural science, the equipment of school laboratories, the value of experimental work by pupils, the organisation of evening science classes and of science schools, the connection between the teaching of pure and applied science; (*b*) the teaching of drawing and of colouring as a preparation for designing and decorative work; (*c*) the value of special and general workshop instruction in elementary, higher, and evening schools, the equipment of school workshops; (*d*) the teaching of agricultural science in elementary, in intermediate, and higher schools, in evening science classes, in special colleges, and in the universities, methods of teaching, experimental farms; (*e*) methods of teaching cookery in schools—*e.g.*, by book-lessons, by demonstrative lectures, and in school kitchens. 4. Teaching of music in schools: 5. Museums, Libraries, and other Subsidiary Aids to Instruction in connection with Schools: Under this head may be included the means of establishing and managing school libraries; the promotion, with the help of the scholars or otherwise, of museums of art and science, illustrative of the local fauna, flora, industry, history, archæology, &c.; School Savings' Banks; botanical and other field excursions; visits to picture galleries and museums; voluntary evening classes for singing, recitations, &c.; and generally the means of connecting the influence of the school with home life and self-improvement. 6. Training of Teachers: Under this head will be considered the right professional preparation for teachers in—*a*, elementary, *b*, intermediate and higher, *c*, special and technical schools. The relative advantages of training in special institutions and in colleges for general education. Normal colleges: their constitution, conditions of admission, programme of studies. Apprenticeship. Model and practising schools. Universities and their relations to the training of teachers. Professorships and lectureships on education. Examination for diplomas and certificates. Legal recognition of such diplomas and certificates. Registration of teachers. 7. Inspection and Examination of Schools: *a.* By the State. *b.* By the universities. *c.* By other public bodies. 8. Organisation of Elementary Education. 9. Organisation of Intermediate and Higher Education. 10. Organisation of University Education. 11. Systems of Public Instruction in Various Countries.

Arrangement of Flowers.—Flowers may be arranged either according to the harmony or contrast of colours. Red harmonises with orange, orange with yellow, violet with red, indigo with violet, blue with indigo, and green with blue. Green is the contrast of red, sky-blue to orange, yellow to violet, blue to orange-red, indigo to orange-yellow, and violet to bluish green. To find the contrast to any flower, cut a small circular piece out of its petals, place it upon white paper, look at it steadily with one eye for a few seconds, without letting the eyelids close, then look from the coloured circle to another part of the white paper, when a circle of another colour will be apparent: this colour is the true contrast, or complementary colour. Tastes differ as to whether the effect of arranging the flowers according to contrast or complementary is more pleasing to the eye than according to harmonies. The former, however, is the most in favour. To carry it out, a blue flower should be placed next an orange flower, a yellow near a violet, and a red or white should have plenty of foliage around it. White contrasts with blue or orange, or still better with red or pink, but not with yellow or violet. —*Amateur Gardening.*



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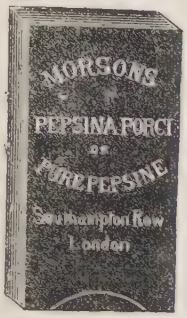

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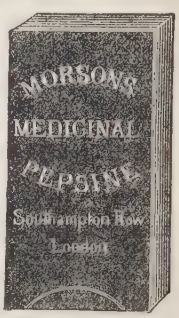

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GROUP III.—THE DWELLING-HOUSE.

CLASS XX. (Dwellings, Models, and Designs for the same, and Specimens of Buildings erected in the Grounds; Fittings and Accessories for Dwelling-Houses; Completely Furnished Apartments) *continued.*—Messrs. Litchfield, 3, Bruton-street, Bond-street, exhibit (400) a practical suggestion for the treatment of a *salon* and *entresalle*, the furniture and appointments of which are in exquisite taste. Messrs. Tuberville, Smith, & Son, 9, Great Marlborough-street, W., have fitted up (403) a charming smoking-room in the Oriental style, designed by Messrs. H. & J. Cooper, many of the materials used in the construction of this chamber being taken from an old house in Cairo. The *ensemble* presents us with all the picturesqueness and luxuriousness of the East combined with the accessories and comforts of nineteenth-century civilization. Dr. Salviati, 311*a*, Regent-street (399), has a pretty and valuable collection of Mosaic pictures and Venetian mirrors, chandeliers, centrepieces, &c. A very interesting set of models has been sent by Mr. Jno. Stone, the Town Clerk of Bath (402); they present us, side by side, with the old Roman baths which existed in the famous Gloucestershire city in the second century, and the modern and luxurious establishments now provided by the Corporation for the relief of suffering. The mineral springs which supply these baths yield 385,000 gallons of water daily at temperatures of 117° and 120° Fahrenheit. The volume of water from the springs is so abundant that not only is there sufficient to supply the extensive bathing establishments, three in number, which the city contains, with fresh mineral water to every private bather, but the Corporation are enabled, in addition, to supply the baths of the various free hospitals, the principal of which is the Mineral Water Hospital for the reception of poor patients, of whom 45,000 have been cured or relieved out of a total of 55,000 admitted since in foundation in 1742.

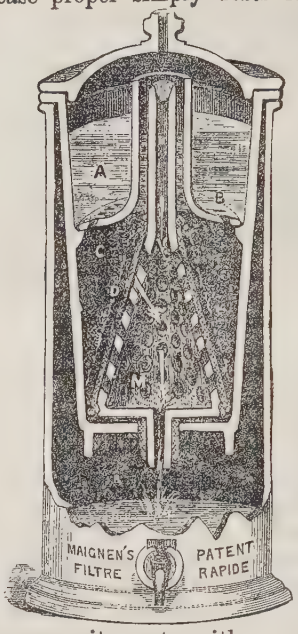
A model of dwellings suitable for the artisan and labouring classes is shown (411) by Mr. T. L. Templeman, Station-road, Taunton, the authorised plumber to the Town Council of the borough. The principal features of the model are a distinct system of ventilation provided for each living-room, and that an efficient, cheap, and durable means is found for the disposal of sewage where no organised system exists. Ventilation is provided for in the following manner:—An air brick is inserted in the wall, six inches above the floor level, on the outside of each room ventilated. A three-inch ware pipe is connected with this and carried up three feet in a slanting position and connected with a flap valve inside the room. This valve is so constructed that the in-current of fresh air is directed towards the ceiling. It may be regulated by a simple arrangement, and, if necessary, closed, and the in-current stopped. At the furthest point possible from this valve is a slide-valve inserted in the ceiling, and a four-inch pipe connected with it and taken up to the ventilating shaft on the roof. All the ventilating pipes pass into this shaft, which is capped by an up-cast cowl, through which a down draught is impossible. In the event of contagious disease occurring in the house, the slide-valve in all the rooms, with the exception of that occupied by the patient, should be closed, and the whole force of the up-cast cowl would then be brought to bear on the room thus occupied, and would draw the contaminated air out at the roof, rendering it less liable for the other inmates to contract the disease. An elaboration of this plan of ventilation is shown in the model in the provision of a recess in the bedroom into which vessels containing offensive matter could be placed during the night. A four-inch pipe leads from this recess to the outside wall, and is carried up towards the roof, whilst the recess is separated from the bedroom merely by a curtain. Mr. Templeman also shows an ingenious system of water-supply to bath and closet suitable only where no water can be supplied under pressure from a company's mains. The bath is fixed in the kitchen, and is cased with wood, so that it may be used as an infant's cot, and the water is brought from the pump by a pipe, the waste from the bath emptying itself over the grating of a trap outside the house. The flushing of the water-closet is managed in this way:—The pump-trough is about six inches higher than the seat of the water-closet, and a $2\frac{1}{2}$-inch P trap with cleaning screw is fixed to the bottom of the trough and the pipe continued on to the arm of water-closet. All water that is used in the house would be thrown, as a matter of course, in the trough, thus acting as a flushing for the closet, or, when necessary, a flush might be given from the pump itself. A furnace is also erected in the back kitchen, either for washing or heating water for bath. With regard to the question of drainage and disposal of sewage, the model shows a drain interceptor fixed as near the w.c. and as far away from any windows as possible to intercept main sewer. The soil from w.c. and the surface water and waste from bath are received into this and passed to main sewer. It is claimed that by this system a current of fresh air is continually passing through the whole of the drainage, thus taking all sewer gas away at the highest point of the roof. Simple filtering beds are provided in the place of the ordinary cesspool, which keep back all the polluted matter and pass nearly clear water at the outfall. This is closed by doors, easily comeatable when full, for cleaning purposes, &c.

The Metropolitan Railway Company send, through their General Manager, a model and drawings of an immense block of artisans' dwellings which the Company are about to erect in the Minories, in substitution for the old and over-crowded tenements which were cleared away in the

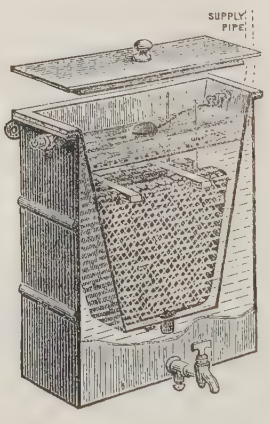
construction of the Tower-hill Extension Railway. The drawings and sections show how great is the care and attention which has been bestowed upon the sanitary arrangements of these projected buildings.

Messrs. Wilcock & Co., Burmantofts, Leeds (410), show some very beautiful specimens of the decorative art as applied to terra cotta, faïence, glazed bricks, &c. It is due to the exertions of such firms as those at Burmantofts and Lambeth that the revival a few years ago of the use of terra cotta and faïence has continued to the present time, and that British artists can at least keep abreast with the Barbotine from Limoges, the Vallaury ware from Mentone, and the Saaguemines ware from Alsace. Messrs. Wilcock derive their clay from a bed at Burmantofts, near Leeds, which lies, two feet thick, a hundred yards from the surface under a fourteen inch seam of Low Moor coal, and covers about 120 acres. The virtues of this clay are—minimum of contraction in drying, hardness and exactness of form when burnt, solidity under pressure, and clearness of colour. The shapes into which it may be converted are limited only by the range of the imagination and the deftness of the potter; and that Messrs. Wilcock's *employés* possess both these faculties is clearly demonstrated by the display at the Health Exhibition. The stand is divided into three sections—pottery, decorative art, and sanitary appliances. Of the first two we need say no more than that the firm have been and are now engaged in decorating, externally and internally, a number of the largest public and private buildings in the kingdom. As to the third section, the principal exhibit is of Messrs. Wilcock's "Improved Sanitary Flushing Closet," which is designed for use in schools, factories, workshops, barracks, and workhouses, and which seems to us to be admirably adapted to serve the ends in view. The closet walls and partitions are made of very strong glazed stone-ware; the closet itself and floor are of stone, the only part of the whole erection which is not stone being the pitch-pine seats. Keeping them perfectly clean and wholesome, therefore, is the simplest matter possible, and consists simply in frequently swilling them. The automatic flushing apparatus may be set to act at regular intervals, or an attendant may come and set the apparatus in immediate working order; but, in either case, the flushing gear is out of the control of the user of the closet. The automatic arrangement is on the syphon principle, and will flush from six to twelve closets provided that all the seats range on a line. It is important to notice that, after flushing, sufficient water is retained in the closet to secure its cleanliness and freedom from offensive smell.

Class XXI.—(Water Supply and Purification, Meters, Filters, Water Fittings, Cisterns, &c.)—In this class Mr. P. A. Maignen, 22 and 23, Great Tower-street, E.C., has a stand (422) for the exhibition of his well-known "Filtre Rapide," as applied to the purposes of domestic filtration. We had ocasion in the Food Group (Class XII.) briefly to notice these filters in reference to the filtration and clarifying of wines, spirits, and beer. This stand, however, will attract a larger and more general attention on the part of the visitors to the Exhibition. Among the many filters we have had occasion to inspect, and on which we have already commented, or shall have to comment, none seems more fully to answer every requirement of a first-class purifier of water—extracting from the liquid both matter in solution and in suspension, restoring to the water that oxygen which is lost in the ordinary course of filtration, and being capable of easy and thorough cleansing—than the "Filtre Rapide." We give a sketch of a section of one of Mr. Maignen's ordinary house filters. R is the reservoir for the filtered water. It is accessible for cleansing, as the filter case proper simply rests loosely on it.

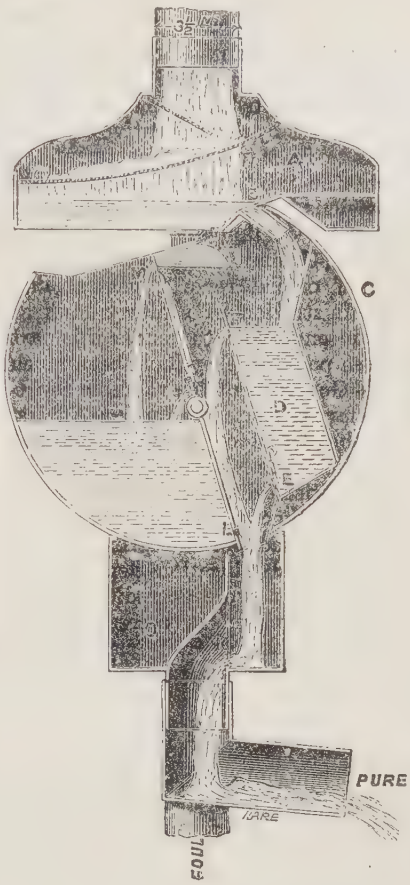


M is the filtering frame, covered with asbestos cloth E—which, as is well-known, is indestructible, even by fire—tied with asbestos cords. D is a layer of powdered filtering medium—Maignen's Patent Carbo-Calcis—deposited automatically by being mixed with the first water poured into the filter. C is granular carbo-calcis put in loosely to fill all the available space between the layer of powdered carbo-calcis and the screen B. The water, being put into the filter, goes first through the granular carbo-calcis, then through the layer of powdered carbo-calcis and the asbestos cloth, issuing into the hollow filtering frame M in a most minute state of division. The course of the filtered water is shown by double arrow; it meets with pure air (shown by single arrow) which has been filtered through a plug of cotton wool, and it falls (shown by treble arrow) pure and aërated into the reservoir R. It will be seen that this new filter differs entirely from anything which has ever been introduced before, and that the water is not only purified, but also oxygenated and rendered brisk and pleasant to drink. So fine is the powdered carbo-calcis that one square inch, one-eighth inch thick, contains more than 200,000 square inches of adhesive or straining service; whilst the granular carbo-calcis is added to arrest the coarser impurities, and to allow the efficiency and speed of filtration to be maintained for a longer period. When the filter requires cleansing, the filter-case is upset, and the granular carbo-calcis falls out, the filtering frame is taken out, the layer of powdered carbo-calcis washed off, and the filter is ready to be re-charged again with fresh carbo-calcis. The filters are made in various sizes and qualities, those for kitchen use being sold at a price which places them within the reach of every artisan in the kingdom. These latter are of neat-looking brown stoneware, the higher-priced filters being in handsomely-decorated white china. Mr. Maignen has applied the principle of the "Filtre Rapide" to Army and Navy purposes with a very large amount of success. The former are made either for the pocket (one of these has been taken by Mr. Stanley on his Congo explorations), or to be carried as a knapsack (of these, fifty have been supplied to the troops in the Soudan, and are doubtless found of great service in the difficult sanitary circumstances in which our soldiers are placed), or in a larger form to be carried on the backs of mules. Mr. Maignen also shows a "Filtre Rapide" as applied to the water-supply of a house. The filter, an illustration of which we append, is fixed in the line of the service-pipes, and a filtered supply of water all over the house is thereby insured. It is made of tinned copper, and can be taken down for



cleansing without the help of a plumber. One of these has recently been supplied to Kensington Palace for the residence of her Royal Highness Princess Louise. The filters are made either with or without a storage for filtered water, and afford a ready and efficient mode of purifying, and, if necessary, softening the entire water supply of the smallest as well as the largest dwelling-house.

A very ingenious apparatus for the separation of rain-water from the impurities with which it becomes charged in its progress from the house-roof is shown (416) by Mr. Charles G. Roberts, of Haslemere, Surrey. The accompanying sketch of "Roberts's Rain-water Separator" will enable our readers the more easily to understand this, at first sight, complicated but really simple and useful appliance. This Separator is not a filter, and does not attempt to filter the water. It simply rejects the clean and stores the dirty rain-water which drains off the house-top, and when it is remembered what advantages are to be obtained from the use of good soft water of reasonable purity, the utility of this invention will be at once apparent. The Separator is balanced upon a pivot, and is divided into two compartments. After passing through the strainer, the water falls into the first compartment; this has a small hole at the bottom (proportioned in size to the area of the roof) through which the water passes into the discharge-pipe. When the rainfall is more than can pass through this hole, the water rises till it reaches two small holes, through which it flows into the second compartment. This compartment fills very slowly, because the water escapes therefrom almost as fast through a hole at the bottom. When the second compartment has filled to a certain level the Separator is overbalanced or canted so that the discharge is directed to the storage tank. Should the rain now increase to storm, which would scour the roof, and bring down further impurities, the first compartment is at once filled up, so that the Separator is reversed to its normal position and the water directed for a time to the waste, until the second compartment fills to a corresponding level, when the Separator is again overbalanced and the water directed to storage. If the rain is very heavy, the first compartment is filled to the top, and the second fills rapidly, so that the Separator acts sooner in a heavy downpour than in a moderate rain. When the rain is leaving off the second compartment is kept full by an auxiliary pipe, so that the Separator remains canted after the water has ceased to pass from the first into the second compartment; by this means the last drop of rain is stored. The following detailed description of the sketch will make these remarks clear. A. Removable strainer with perforated plate to prevent rubbish passing into Separator. B. Outlet for water to pass to Separator. C. Separator balanced on pivot. D. Small compartment into which the rain water first falls. E. Small hole fitted with washer proportioned to size of roof. F. Larger hole to take the overflow from D during moderate rain. G. Discharge pipe. In a storm the water fills the compartment D and flows over the top of this pipe. H. Small holes at back of G between compartments. When the rainfall exceeds the discharging capacity of hole E the water rises in compartment D and passing through holes H slowly fills compartment J. When the weight of water in J overbalances the Separator, it is canted (as shown in drawing) and the water (by that time pure) directed by the discharge-pipe, G, into the storage-pipe, K. L. Small hole at bottom of compartment J. M. M. Auxiliary pipe for keeping compartment J full after the Separator is canted when the rain is leaving off, so that the last drop of rain may be stored. By raising the slide, N, a third and a fourth hole can be opened at H; this will cause the compartment J to fill more rapidly. The whole of the water passes through the discharge-pipe, G, which conveys it into the waste-pipe, O, so long as it remains uncanted. The length of time it remains in this position, running the water to waste, is regulated by the slide N to suit the smokiness of the locality. The dotted lines down the centre indicate the position of the iron frame to which the apparatus is attached, provided with holes for fixing to the wall.



The Silicated Carbon Filter Co., Battersea, show (418) a collection of their manufactures for domestic and travelling purposes, for ships' cabins, hospitals and infirmaries, and for army and ambulance use. The principle of this filter, as is well known, is that of a large block of silicated carbon through which the water passes in the process of filtration. They possess one great advantage in that the removal of the block leaves the whole of the interior of the filter open for inspection and cleansing; whilst the block itself may also be easily cleaned. The company have recently introduced a very considerable improvement in the block itself. It is now made with non-porous top and sides, so that an upward direction is given to the water, which, instead of merely sinking through the carbon block, is passed through a greater thickness of the filtering medium. Externally, these filters are also very effective, being made in every shape and of several materials—from the thinnest of glass to the coarsest of brown stoneware.

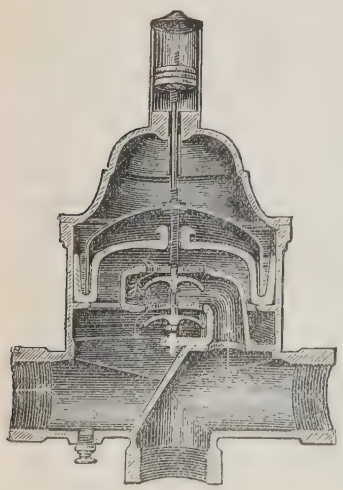
Amongst the many exhibitors of filters which call for no special mention on account either of novelty of construction, or the manner in which the principle is carried out are:—The Boston Filter Co., Boston, Lincolnshire (419); Messrs. D. Judson & Son, 77, Southwark-street, S.E., manufacturers of the "Perfect Purity" Rapid Water Filter (421); the Universal House Filter Co., 35, Queen Victoria-street (434), the manufacturers of Landon's Patent Filter, which consists of a charcoal block in which a tube is fixed, the block being placed in a tub of water, and the air exhausted from the tube by suction; Messrs. J. H. Graham & Co., Great Eastern-street, E.C. (438), makers of another form of carbon block filters; and Messrs. W. M. Jowett & Co., Corporation-street, Manchester, whose filters, either on the loose charcoal or block carbon principle, are filled with a bush hole at the back, by which all the water can be drained off and the bottom of the filter thoroughly cleansed. Messrs. Doulton & Co., of the Lambeth Potteries, have a stall in this class for the

display of their Manganous Carbon and Granulated Charcoal Filters, of which we wrote at some length when describing their principal stand in a previous class.

International Health Exhibition—Library.—This Library, which was opened to the public on Monday, the 16th instant, has been organised by a special Sub-Committee appointed in February last by the Executive Council. The original intention was to refer to this department the exhibits comprised within the "Literature" class, under each group of the two divisions into which the Exhibition has been divided. But besides dealing with these exhibits in this way, the Library Sub-Committee have brought together a large collection of official reports, central and local, bearing on the administration of sanitary laws at home and abroad. In their endeavour to render this part of their work as complete as possible, they have been much indebted to Her Majesty's Government for valuable assistance rendered by the Secretary of State for Foreign Affairs, who, at the request of the Duke of Buckingham and Chandos, the Chairman of the Executive Council, caused to be issued to British diplomatic representatives abroad, circulars inviting them to obtain lists, accompanied by specimens, of reports and works bearing on the administration of the sanitary and education departments of the countries to which they were accredited. The Library Sub-Committee have also been in correspondence with the mayors of boroughs and chairmen of local boards, with a view to obtain copies of local sanitary acts and reports, of which a large number have been received. The committee have, furthermore, entered into correspondence with the authorities of all the principal health resorts at home and abroad, in order to obtain a collection of guide-books and medical and popular treatises referring to the climatic and other advantages of these places, and, as a result, an interesting feature of the Library will be the varied collection of books and photographs received from a large number of these resorts. Authors and publishers throughout Europe have also been invited to send contributions, and the Committee feel that they are much indebted to them for the ready response made to their appeal. The number of books now received amounts to about 6,000. The room in which the Library has been arranged is in the Albert Hall, overlooking the conservatory. Its furnishing and decorations have been entrusted to Messrs. Liberty & Co.

Doctor: "There, get that prescription filled and take a tablespoonful three times a day before meals." Pauper patient: "But, doctor, I don't get but one meal in two days."

Explosive Oil-Lamps. — Accidents by fire may be classified in two principal groups — those of which the causes are preventable, and those of which they are not. The former section will be generally admitted to be the larger, and it is capable of minute subdivision by its numerous varieties of causation. A volume would be required to detail them all; but some, from their commonplace character, are especially noteworthy, and readily suggest their own remedy. Among these is one which deserves comment, not only from its frequent and close connection with loss of property, but because it even more nearly and more naturally affects our personal safety. This is the habit of using explosive oil in lamps. The oil hitherto particularly accountable is that known as benzoline. It is a good deal used by the poorer classes, on account of its cheapness, thriftiness, and the ease with which it can be applied to lighting purposes; and is designed merely to saturate the wick, and not to act as a reserve supply within the body of the lamp, like paraffin. Its great disadvantage is its explosiveness; and the danger arising from this quality is increased by the temptation, too often yielded to, to partly fill the lamp-cavity with it, so as to obviate the trouble of frequently anointing the wick. Such a substance clearly should not be used but by careful hands; yet it is precisely among those who are driven with house-work, who are much about fire-places, as cooks and house-cleaners, that one finds it. Add to this that the ordinary small benzoline lamp is, from its great lightness and its conical shape, very apt to be upset, and it does not require much reasoning to show that we have here all the requisites for an accident except the final trifle of carelessness or forgetfulness which shall act as the spark to the magazine. We have observed that care is necessary in handling such materials, and, in so saying, we have only uttered an evident fact. But it is very doubtful if they need be used at all. The light of such small lamps is little, if at all, better than an ordinary candle; both are alike economical; in point of cleanliness there is little to choose; and the dangers of the benzoline method manifestly overbalance its apparent advantages. If a lamp be used, let it be stable; have its flame protected in every possible instance with a shade, and be fed with some non-volatile and non-explosive oil, such as paraffin.—*British Medical Journal.*



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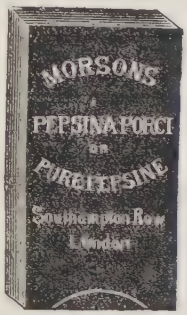

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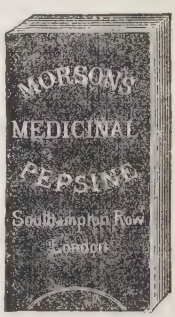

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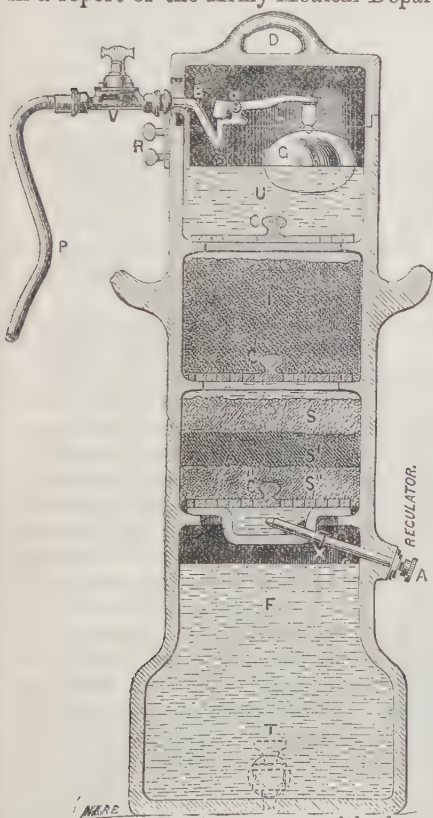
NINTH NOTICE.

Group III.—The Dwelling-House.

Class XXI. (Water Supply and Purification. Meters, Filters, Water Fittings, Cisterns, &c.) *continued.*—The Spongy Iron Domestic Filter Company, Limited, 22, New Oxford-street, are exhibitors in this class (417), with several varieties of their excellent filters on the basis of Bischof's Patent. The best method of purifying water for domestic purposes has, for a very long time, been a matter of controversy—a controversy which was carried on a few months ago in the pages of Health by gentlemen well qualified to deal with the subject. Without again entering into the merits of the question, it is sufficient here to say that both private and official experiments have, over and over again, demonstrated the efficiency of Bischof's system, as carried out by this company. These experiments were summed up in a report of the Army Medical Department as follows:—



"This (spongy iron) is a very powerful filtering substance, and is used generally in contact with what is called 'prepared sand,' a mixture of fine gravel with *pyrolucite*, crude binoxide of manganese. The object of this last substance is to remove the small quantity of iron taken up by the water. The action of spongy iron is slow but complete; about twenty-two minutes is the time of exposure, and this is usually sufficient to purify all but very impure waters. The water filtered shows no tendency to favour the growth of low forms of life, and may be stored with impunity; water may also be left in contact with the medium for an indefinite period without undergoing any deterioration." Experiments made by the Prussian and other military authorities go to show that the Spongy Iron Filter is the only one which will prevent the spreading of typhoid fever by impure water, and with such a recommendation in its favour, it is no wonder that these filters are very largely used by all classes. The process has been in active work for a long time at the Antwerp Water-works, and at this stand there are a series of galvanised iron model cylinders in operation, showing how the system is applied there. There is also shown in operation a special ball-cock spongy iron filter, of which we give an illustration. The unfiltered water is supplied by means of ball-cock, B, with glass ball, G, and screw valve, V; the latter serves to shut off the water in any emergency. The ball-cock requires no fixing to a wall, but is fastened to the side of the filter case by screws, R; it is connected with the water supply or cistern by indiarubber or other tubing, P. If the pressure of the water be very great, a larger-sized glass ball may be supplied. The water passes through the several layers of filtering materials, which are enclosed between the perforated plates, C, C′, C″. It is next collected in a small well, or regulator bowl, and thence passes into a tin tube, provided at its outer end with screw cap, A. The lateral opening, X, in the side of the tube forms the only communication between the upper part of the filter and the reservoir for filtered water. The flow of water is thus controlled by the size of such opening. If the unfiltered water contains much muddy suspended matter, a small stoneware vessel may be placed into space U, so as to surround the ball of ball-cock, allowing it to play. The remaining part of U should then be filled with sand to be washed, and replaced periodically when being choked. This greatly tends to prevent choking of the filtering materials underneath. In order that the filtration may be effective, it is only necessary to see that the materials are always covered with water. The Company also show specimens and sections of different spongy iron filters in galvanised iron, stone, and fancy pottery ware.

Messrs. S. H. Johnson and Co., Stratford, exhibit (430) machinery for the purification of water by patent carbon-paper filters—a method totally distinct from those ordinarily applied. The filtering medium employed consists of thick sheets of filtering paper, the peculiarity of which is that, instead of being made of ordinary paper pulp alone, a quantity of pure animal charcoal, freed from phosphates by washing with acid, is added to the pulp before it is formed into sheets. From 10 to 20 per cent. of the weight of this finished paper consists of purified animal charcoal. This special paper is used in a small filter press worked by means of the pressure in the main service-pipe either in the basement of the house where the water comes in, in case of constant service, or else in the service-pipe from the supply cistern. The water to be filtered comes in at one side of the apparatus, and after having passed through the carbon paper is delivered into the service-pipe under pressure. When it is desired to change the carbon papers for fresh ones, the filter can be shut off on both sides from the service-pipe, a small disc run back and the grooved plates and distance frames of which the filtering chambers consist can be opened out, and the spent carbon papers changed in the course of a minute

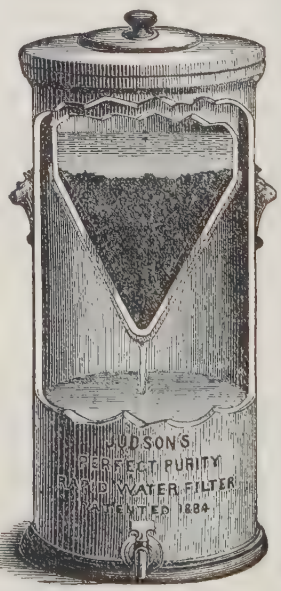
or two. When screwed up the machine is again ready for work. These machines, although occupying a small space, have a very considerable area of filtering surface. They are made with from four to twelve chambers, and each chamber is provided with a circular disc of the prepared paper on each side; so that a twelve-chamber filter would simultaneously have twenty-four such paper discs in actual work under the pressure of the main. The great advantages which these filters are claimed to possess are that they are perfectly automatic and thorough in their operation, that the filtering media are easily renewed, and that both the papers and the fittings can be supplied at a moderate price.

Another description of self-cleansing, high-pressure water-filters adapted to domestic and manufacturing purposes is exhibited (424) by Mr. Thomas Roberts, Levenshulme, Manchester. These filters are encased in an iron tube, which is fixed to the water main or the cistern. At the bottom of this tube is a dial, on which is marked "unfiltered," "filtered," and "cleansing." When the finger is turned to the point marked "unfiltered," the water is delivered direct from the main without being purified or changed in any way; but when the finger is turned to "filtered," the water enters the filter at the bottom, and is forced upwards by the pressure of the supply through a quantity of prepared animal charcoal. Then, again, the hand may be turned to the point marked "cleansing," when the whole force of the water supply is directed on to the charcoal, washing away the impurities, and leaving the filter by a tap especially provided for the purpose. When the purifying medium requires renewal, a new filter-body is supplied at a small cost, and can be easily secured inside the tube. One great advantage which these filters possess is that they are absolutely air-tight, and the water which passes through them can in no way be contaminated.

Messrs. Bailey & Co., the Pottery, Fulham (432), are the exhibitors of a patent charcoal-lute filter, in the construction of which no cement is used, and nothing, therefore, comes into contact with the water except the glazed stoneware. The filtering medium is contained in a case which rests on a lute, or branch of stone, attached to the filter-case. Another domestic filter is shown by Mr. Andrew Bell, 18, Tib-lane, Manchester (437). This filter is made for fixing into the cistern. The purifying medium is charcoal, and the apparatus is fitted with a compression screw to suit all pressures. The firm also apply their system of filtration to steam boilers, and allege that their use will prevent scaling and incrustation, increasing the evaporative power and durability of boilers, and doing away with the Sunday boiler cleansing usual in many large factories.

Messrs. J. & M. Craig, of Kilmarnock, exhibit, amongst a large collection of drain and sewer-pipes, a ventilating drain-pipe, the invention of Mr. P. W. Buchan, of Glasgow. In this the water is made to fall into the trap over a sharp edge, in order to break up and wash away any fæces that might otherwise remain floating on the surface, as is so common with many drain-traps. Mr. Buchan is also the patentee of a plan of ventilation for drains in cases where the drain runs through the dwelling. A ventilating syphon trap is put on between the house and the sewer, which locks off all the sewer gas from the house, and at the same time allows a current of fresh air to enter by a grating above the trap. The air, entering this grating, proceeds along the drain and up the soil-pipe, diluting and carrying off the sewer-gas, which finds an exit above the roof. A better plan still, which Mr. Buchan has adopted, is to put a ventilating trap at the bottom of the soil-pipe and run up a special ventilating blow-off pipe for the drain, a patent ventilator being fixed to induce a strong up-current. Messrs. Craig also manufacture for Mr. Buchan a patent grease-trap for kitchen sinks, which was awarded a certificate of merit at the Glasgow Sanitary Exhibition last year. The grease collects in a large central compartment in the trap, whence it is easily removed; and thus the drain-pipes beyond are kept clean. As the water from the sink both enters and leaves the grease-receptacle below the level on which the grease cake is formed, the latter may be allowed to accumulate for some time without presenting any obstacle to the passage of water, thus obviating an objection to which many grease-traps at present in use are liable. Another special advantage is the absence of any projecting pipe which would interfere with the easy removal of all the grease. Then, again, we should notice Buchan's patent improved drain-pipes. The improvements here consist in making each pipe with a small attached block or seat, moulded along with and fixed to the faucet end of the pipe, which has the effect of raising up the pipe sufficiently to allow the hand or tool to get in easily underneath the faucet, so as to feel and make the joint properly. This block, being flat at its base, also prevents the pipe from rolling or moving so readily as the ordinary pipe, and so prevents the joints from being broken after they are made, and before they are set. On a rainy day, or in wet soil, the attached block is found very useful in raising the faucet of the pipe above the level of the water in the bed of the cutting, thus enabling the work of laying the drains to be proceeded with in any weather. Where a good job is wanted, and the pipes are to be concreted, this new pipe —as has been already proved by experience—will be found a great advantage. The enamelled fireclay goods exhibited by this firm—Messrs. J. & M. Craig—are particularly good. The enamelled bricks may justly be described as being of a brilliant white colour, and are well adapted for lining brick walls and wells in buildings where reflection of light is valuable, also for lining common stairs and closets, public baths, water-closets—passages and wards in fever and other hospitals—and generally, for any purpose where it is important to have beauty and lightness combined with durability, non-absorption of vapours, and easiness to keep clean. The washtubs and sinks are claimed to be much superior to iron and wood. In appearance they are nearly equal to porcelain, which they greatly excel in strength and durability.

Messrs. Daniel Judson & Son, 77, Southwark-street (421), are the makers of the "Perfect Purity" Rapid Water Filter. These filters are of the simplest possible construction, are easily cleaned, and the purifying medium is quickly removed. The following figure gives an idea both of the exterior and interior of the filter. It shows the general earthenware reservoir, the shoulder of which holds the simple filtering apparatus, while the lower part serves as a store for the pure water as it runs from the filtering medium. On one side, the bottom is somewhat depressed so that all the water may be drawn off by the tap. The earthenware cone is supported on the shoulder of the reservoir, and the lower half of this cone is perforated. When the filter is in use these perforations are quite filled with Judson's special powdered filtering medium, the medium



being maintained in the perforations by a closely-fitting asbestos bag securely fastened to the outside of the cone. The bag is made of asbestos because this material cannot decay, and is indestructible by acids, or even by fire. The filtering medium is a specially-prepared mixture of carbon with insoluble mineral materials, but the purifying power of the filter may, if desired, be still further increased by half filling the cone with granular medium in addition to the powdered medium. The process of filtration by Messrs. Judson's apparatus is rapid and complete, and improves the state of aëration of the water passed through it.

The Glenfield Company, Kilmarnock (445), has a varied collection of sluice, steam, wheel, air, disc, and ball valves. They exhibit also Hill's Patent Automatic Flusher, for town sewers and house-drains for which are claimed the following advantages:—(1) It is automatic in action, the "head" of water at which it flushes can, without any extra cost, be increased to 100 per cent., and when the required "head" of water is reached the action is instantaneous; (2) Without any additional arrangement, it is a grease-intercepter and complete stink-preventer; (3) It can be examined without undoing any of the parts, and the water in the tank can be at once emptied by the examiner; (4) It is of less weight, occupies less space, and is more easily fixed than any other flusher; and (5) It is by far the cheapest flusher in the market. The same firm are also makers of the Kennedy Water Meter, of which some thousands are in successful operation in the manufacturing districts of England and Scotland. The measuring parts of this meter are a cylinder and piston. The former is of cast-iron, and is generally lined with brass; the latter is of vulcanite, on which an india-rubber roller forms an elastic separation between the top and bottom of the cylinder. Strains are avoided by this piston, which is free to move till reversed by the current, the stroke being actually longer the higher the velocity. The index arrangement does not count the strokes, but measures the piston travel. The four-way cock, which directs the water alternately above and below the piston, is actuated by a weight —thus there is no dead point. All the moving parts move round on an axial line, merely resting on each other, thus materially reducing the wear. All parts are finished to gauge. When any part requires to be renewed, the details can be fixed by any handy-man. This meter registers the smallest leak or ball-cock supply, yet does not sensibly reduce the pressure. For instance, the effect on pressure or delivery of fixing a 1-in. meter on a 1-in. pipe is the same as adding $3\frac{1}{2}$ yards horizontally to the length of the pipe. It cannot register against the consumer, while the facts that it works with a small flow, and that the index does not hang at the reverse, are conclusive that it is accurate. It delivers with the same head from three to four times the quantity delivered by the ordinary forms of inferential meter, or with about 3 ft. of head it delivers as much as they do with 50 ft.

The Reliance Water Apparatus Company, 28, Threadneedle-street, E.C. (447), exhibit the simple and efficient waste-preventing apparatus the name of which gives the title to the company which manufactures it. With this valve and waste-preventer applied to water closets, all offensive and disease-bearing effluvia are prevented from contaminating the water in the supply-pipe, perfect flushing is ensured, and water may be supplied either direct from the main, or any number of closets can be worked from one storage cistern, without any intermediate waste-preventer cisterns, wires, chains, cranks, &c. The action of this waste-preventer is such, that if the handle of the closet be raised and held in any position, a flush of, say, not more than two gallons is obtained; and if the handle be allowed to descend, and then be raised again, another equal flush of water is immediately obtained. The waste-preventer is approved by the water companies, and is important to them, as it absolutely prevents the supply-valve being carelessly or purposely left open.

Another water-waste preventer for closets is exhibited by Mr. George Homewood, Court-house, Ockenden-lane, Cuckfield, Sussex (449). This invention, which is quite a new one, being only provisionally protected, has for its object the more rapid filling and discharge of the cistern than in any of the methods hitherto employed. The apparatus consists of a connected valve and syphon. Upon the raising of the former from its seat there is an immediate flow of water, which exhausts the air in the syphon and causes a continuous flow through the syphon until the cistern is emptied. Air is admitted by a hole and notch in the short leg of the syphon, by which means the water running into the cistern through the ball valve is prevented from flowing through the syphon until the other valve with which it is connected is again raised. This new valve, instead of being screwed together in pieces, as is generally the case, is made in one piece, and can be removed by simply unscrewing one small nut. The inventor claims that by this apparatus a waste-preventing cistern containing three gallons of water, supplied by a cistern placed only 2 ft. above it through a $\frac{3}{8}$ ball valve, and discharged through a $1\frac{1}{4}$ valve, can be emptied and refilled in one minute.

Messrs. Joseph Halliday & Co., Newtown, Manchester (451), show some high pressure and low pressure cistern filters, the former being exhibited with glass fittings so as to show their mode of action. Both classes are distinguished by a high degree of efficiency. The low pressure cistern filters are specially fitted with an improved valve to regulate the speed of filtration, and by the opening or closing of this valve the number of gallons to be filtered per hour may be regulated with the utmost exactness. The purifying medium is a specially prepared animal charcoal, which is easily cleaned and is rapid in its action. Another very good filter manufactured by this firm is a high pressure cylinder filter which may be fitted either to private houses or to larger establishments with an equal certainty of success. They are distinguished above all other kinds of filters by their excellent mechanical construction, method of arranging the various filtering bed-divisions, and charging the filtering medium, whereby perfect filtration is insured, with the same freedom of supply from the filter as when the water is taken direct from the main or pump. These filters are formed of one or more strong iron cylinders, divided into compartments, the bottom compartment, or unfiltered water chamber, receiving the water in the first instance. The filtering medium consists of specially prepared animal charcoal of various sizes, in granular form, graduating to that of gunpowder. This is systematically placed in each of the filtering receptacles, and bedded on perforated iron plates in such a manner as to permit the water to filter upwards under pressure (through the filtering medium) into the filtered water chamber at the top of cylinder. From the latter flows a free and continuous supply of pure water whenever required, and obtainable by simply keeping the hand on the dial plate at the point where the word "filtered" is marked. The method of upward filtration on this patent high-pressure self-cleansing principle possesses great advantages over that of the ordinary filters, which are fed from the top, and filter by gravitation. Messrs. Halliday's system is also much superior to that employed in other high-pressure filters, which filter in one direction only, and cannot be cleansed by reversing the action. This firm's productions, which filter in both directions upwards and

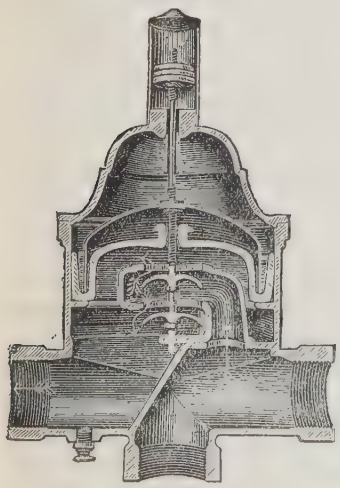
downwards, and cleanse at the same time, as required, combine such points of excellence as to render their action as near an approach to perfect filtration of water, in large or small quantities, continuously, that has hitherto been attained. The method of thoroughly cleansing the water chambers and filter layers from organic impurities is quickly and thoroughly performed by simply reversing the flow of water through the body of the filter, downwards and upwards, through the water chambers and discharge outlets. The operation, which is satisfactorily concluded in the course of a few minutes, is effected by merely moving the hand on the dial plate to the part marked "cleansing." Many of these filters are fixed to the drinking-fountains at the passenger stations of the North-Eastern, Lancashire and Yorkshire, and Great-Eastern Railways; and Messrs. Halliday have already obtained for them some six prize medals at various exhibitions.

Apropos of the gossamer fireproof materials, a visitor at the Health Exhibition asked: Why will young ladies object to wearing these fireproof dresses? Why, because they will neither kindle a flame, nor even attract a spark!

The ideal hygiene, the art of perfect culture of mind and body, is more than a dream—"a hope born only of our longings and destined to die of our experience." Man is but one factor in a vast system, the evolution of which on this earth has proceeded without reference to what we call economy either of time or of material.

An Interesting Movement.—The Queen's Park Estate is the second large estate completed by the Artizans', Labourers', and General Dwellings Company, Limited. It is situated on the north of the Harrow-road, near Kilburn-lane. The area is about 70 acres, and the number of houses is nearly 2,200. Only 121 of these have been sold on deferred payments, the remainder, with the exception of some shops and special houses, being let at inclusive weekly rentals, varying from 7s. to 13s. A few figures as to the progress and development of the estate may be interesting. Operations were commenced in 1876, and the first houses were let in 1877, and produced in that year a rental of about £6,500. In 1878 a large number of houses begun in the previous year were finished and let, the rental springing up to £15,000. In 1879 the present Board deemed it prudent to complete as far as possible all unfinished work, and to delay somewhat the extension of buildings; the increase of rental for that year was about £2,700 only. In 1880 work went forward again, and the rental grew to £23,700. In 1881 it increased to £32,260. In 1882 it went to £42,200, an increase of nearly £10,000 on the year; and in 1883 it was £50,700; and for the present year it is estimated to reach £52,000. The total cost of this estate has been nearly £700,000. The building operations of the company are now concentrated upon the development of their Noel Park Estate, at Hornsey, N. When finished it will be the finest property of the company, and will consist of about 2,600 houses and shops of similar character to those at Queen's Park, but with such improvements as experience has suggested, and at lower rents.

Good Eggs.—It is impossible, says an American contemporary, to tell whether eggs are fertile or otherwise before putting them under hens or into an incubator except by breaking them. Then, if one be an expert, he can tell for a certainty whether the eggs would have hatched. The proper way is to set the eggs, and within a week (and with some varieties sooner) the fertilised eggs can be selected from the barren ones. The eggs that will hatch will appear dark; there will be a dark spot that may readily be distinguished when held against a strong light, and that spot is the embryo chick. On opening a fresh egg that is fertilised, the germ can be discovered on the yelk. It is about the size of a small pea, and frequently, not always, floats to the top on opening. When within the shell, this germ is supposed always to remain uppermost, and during the period of incubation receives the greatest amount of warmth. The examination of eggs against a strong light is the safe guide as to their condition. When the whole shell is full and dark, the egg is within a day or so of hatching, and if the chick is alive, it may be heard if placed to the ear. If all is still and dark, the chick is dead. Often the little thing dies owing to the toughness of the shell, or to a sudden blow that may have been received. Eggs for hatching must be handled with care, and should be slightly moistened when hatching, if set in a dry place. If on the moist earth, it is unnecessary. Fresh eggs may be separated from stale ones by examining or "candling." If fresh, the air-bladder is small—no larger than a pea; if stale, it will be of the size of a nickel, or if very old, an old-fashioned copper will barely cover the air space. The general gritty feel of the shell is sometimes a guide, but not always correct. In selecting eggs for incubation choose rather those of medium size and pointed, or tapering to the small end; an unusually large or an exact oval egg seldom hatches. If the fowls are in a healthy vigorous condition, there is little doubt.



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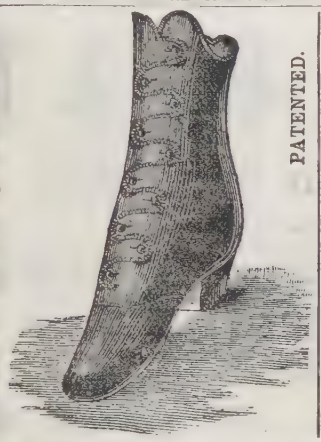

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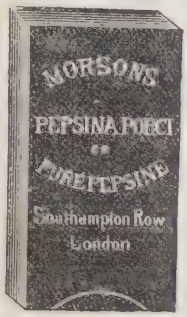

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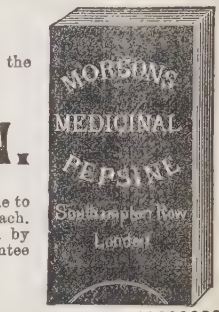

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Group III.—The Dwelling-House.

Class XXI. (Water Supply and Purification, Meters, Filters, Water Fittings, Cisterns, &c.) *continued.*—Messrs. Chedgey & Co., the Grove, Great Guildford-street, S.E. (457), show a large collection of glass-lined pipes, pumps, cylinders, &c. It is unnecessary to point out the various uses to which glass lined in this fashion may be put, or the great advantages in securing absolute freedom from metallic poisons which may be gained by the employment of these lined tubes. Some very interesting specimens of glass so used as a constructive material are to be seen at this stand. We have here evidence that by some special process glass can be accurately turned and surfaced at a reasonable cost, and is thus applicable for pump cylinders, plungers, ball-valves, rollers, &c. Pump cylinders, up to 6-in. bore, are shown here by Messrs. Chedgey, placed in gun-metal casings, and having plungers of glass, metal, or wood, with glass ball-valves, according to the purpose for which they are to be used. For acids, vinegar, bleaching and dyeing works, chemical factories, and probably distilleries, these pumps seem admirably adapted, and have been in use for some years past; they have the great advantage of being affected by no fluids, perfectly clean, and always transparent, so that not only stoppages in the action of the pump can be easily detected, but the condition of the material passing through them can any time be examined. They can be made of any strength, the fracturing strain of the glass used is over three tons per square inch, and, being mild, there is no fear of it breaking from change of temperature. Rollers are also made of glass for calendering woods and paper; their surface is very beautiful, and they are not affected by damp or acid like metal rollers. The firm also make glass ball-valves and glass-lined iron pipes for the conveyance of acids, &c.

Messrs. R. Anderson & Co., Duke-street, Liverpool (459), have a large assortment of water-taps and fittings adapted for cisterns, boilers, and lavatories, which both in general make and finish are among the best at this exhibition. The firm have been the contractors to the Liverpool Corporation Water Works for nearly a quarter of a century, and the statistics prepared by that department are a striking testimony of the excellence of Messrs. Anderson's work. It appears that during the year ending Dec. 31, 1883, the total number of fittings received by the testing officer was 58,922; of which 24 per cent. of the stop-cocks, 8 per cent. of ball-cocks, and nearly 7 per cent. of flushing cisterns were rejected as not coming up to the standard of efficiency. But of the brass work supplied to the Corporation by Messrs. Anderson, the proportion rejected was very much smaller, as the following figures will show:—Steel stop-cocks approved, 1,947; rejected, 22; ferrules approved, 2,058; rejected, 65; standpipes approved, 168; rejected, none; screw-down bib-cocks approved, 214; rejected, 2. An American sanitary journal, in reproducing these figures, comments upon the importance of this question of water waste, and remarks:—"These figures ought to be useful to water-works engineers and plumbers. The Liverpool Testing Office has now been in existence for ten years; its regulations and the methods of testing adopted are well known to manufacturers; a charge is made for testing each rejected fitting, and yet 20 per cent. of the fittings submitted for approval are found on examination to be defective. It is probable that under the conditions which obtain in the Liverpool office most of the defects which cause rejection are such as would not be apparent on a superficial examination, and it is therefore obvious that in places where there is no system of testing, the proportion of bad fittings put into houses and other buildings must be greater than the percentages we have given. Then the question arises, what becomes of the fittings which are condemned in the Liverpool, Manchester, and other testing offices? It is almost certain that many of them are sold in neighbouring towns where testing establishments do not exist. So much the worse for those towns."

The fact that there are other means of obtaining a pure supply of water for domestic consumption than by relying upon the ordinary town service, is strongly brought home to the mind by two exhibitors who have adjoining stands in this class. First comes Messrs. Le Grand & Sutcliffe, of 100, Bunhill-row, E.C. (458), who show their Abyssinian and Artesian tube wells, and models illustrating their action. These appliances are in use in several towns in England, and on a smaller scale, might, we presume, be adapted for the requirements of a single house. The crude idea of driving a tube into the ground for water is scarcely more than a dozen years old, and many of the appliances for driving tube wells are still more recent. The process of sinking these "Norton's Patent Abyssinian Tube Wells" may be interesting to describe. In the first place, the materials used must be of the very best quality, and specially tough and good iron is required for the tubes. The first tube is pointed and perforated up for a few inches, with holes varying from one-eighth to quarter inch. The point is somewhat bulbous, but only sufficiently so to make clearance for the sockets by which the tubes are connected together. On the tube a clamp is fastened, provided with steel teeth, so as to grip the tube. This clamp is tightened by means of two bolts. Next, a cast-iron driving-weight, or monkey, is slipped on to the tube, above the clamp. The tube thus furnished is stood up perfectly vertical in the centre of the tripod; ropes are made fast to the monkey, and driving is commenced by two men pulling the ropes, and allowing the monkey to fall on the clamp. It is particularly important that the bolts of the clamp are kept tight, so that no slipping takes place. When

The Association for the Supply of Pure Vaccine Lymph, formed 1877, 3, Hemmings-row, St. Martin's-lane, London, W.C.; near Charing-cross Telegraph Office, 448, West Strand, W.C. Sole agents for Dr. Warlomont's Calf Vaccine.—[Advt.]

the pointed tube has so far penetrated the earth that the clamp reaches the ground, the bolts are slackened and the clamp raised again some two or three feet. Length after length of the tube is thus driven into the earth, being connected together by socket-joints. It will be noticed that the tube-well proper is, therefore, self-boring, and that no core of earth is removed. It was at first feared that the perforations would be clogged by particles of earth, and the inventor therefore made a sort of shield to protect the perforations; but experience has proved this protection to be quite unnecessary. Tube wells have many obvious advantages over a dug well; the water is less liable to contamination, the cost of making is infinitely smaller, and the water is cool and refreshing even in the hottest weather. Messrs. Le Grand & Sutcliffe have bored wells with the greatest success, both as to cost, purity of the water, and constancy of supply, at Watford, Shrewsbury, Skegness, Melton Mowbray, Aldershot, Wallingford, and other places. The name "Abyssinian," we may mention, has stuck to these tube-wells in consequence of their having been used with such good results during the military expedition to that country some years ago.

The other artesian tube-well makers who exhibit here are Messrs. Isler & Co., 88, Southwark-street, S.E. (460). Not only do they display the necessary machinery for making tube-wells, but they appeal to the visitors to the Exhibition in the most striking of all ways in which conviction can be brought home to one's mind. They have driven their tubes into the ground under the Exhibition to a depth of 21 ft., and can pump 1,200 gallons an hour of the clearest and most refreshing water we have ever tasted —at least, in London. The *employés* of the place, the men of the Guards' bands, and others who are constantly in the building have not been long in discovering the qualities of this water, and the attendant is besieged all day long by these thirsty souls. The system of driving adopted by Messrs. Isler, is very much the same as that we have just described, and it only remains to say that a tube-well large enough to supply a good-sized house with plenty of pure water may be driven and filled for some £8 or so; whilst, for extensive industrial works, the supply of water which can be provided is, in most cases, practically unlimited, means being provided, if a number of springs are reached, of connecting all the water into one main tube. We may here add a few instances in which the tube-wells made by Messrs. C. Isler & Co., have been successfully driven. At Messrs. Seabrooke's brewery in Essex, for instance, a 2-in. tube-well was added to two existing wells, the yield of which was insufficient, and the result has since been an ample supply of water. In another case in the same district, we are told, a plentiful supply was obtained by means of a driven tube-well 57 ft. deep. This well was fitted with a double set of lift or force pumps, worked by a half-horse-power gas-engine, for the supply of 86 houses, the owner of which has thus been able to dispense with the water-rate. It is worth recording here that, in order to supply the *Exmouth* training-ship, the Metropolitan Asylum Board drove a 2-in. tube-well on the banks of the Thames to the depth of 75 ft. in a day, 50 ft. of clay having to be penetrated before the chalk was reached. The result of this, however, is a yield of 1,200 gallons per hour. Again, at Aberdovey, North Wales, three 2-in. tube-wells have been driven to meet the requirements of the Cambrian Steam Flour Mills. In this case the stratum which had to be pierced was of a fine sandy formation. To overcome the special difficulties of such a case special tubes were made to prevent the fine sand choking the pumps and filling the borers, and the result, we are told, was highly satisfactory. Each of these tube-wells now yields at the rate of 1,100 gallons per hour, perfectly free from sand. In cases where water has to be drawn from deeper sources, and through harder soils than can be penetrated by driven tube-wells, Artesian-bored tube-wells may be most advantageously used. With these wells any depth can be reached, and polluted surface-springs effectually avoided. When it is found necessary to deepen a dug well by means of an Artesian well, the existing supply can be drawn upon without any interference, whilst boring operations are in progress. As illustrating the utility of these wells, we may state that Messrs. C. Isler & Co. some time ago completed at Northfleet, the boring of an Artesian tube-well 135 ft. deep, 10 in. in diameter, through 40 ft. of clay, 29 ft. of ballast of a very coarse description, and 66 ft. of chalk. There were, in this case, as many as 69 ft. of piping, the topmost portion of which was 6 ft. below the surface. The operation took less than a month to accomplish, and now a regular supply of 30,000 gallons per day of ten hours has been secured. At Messrs. Brook's Cement Works, Grays, Kent, a 100-feet bored tube-well, four inches in diameter, yields 24,000 gallons per day of ten hours; and at Gravesend, for the new extension works of the London, Chatham, and Dover Railway, a 100-feet bored tube-well, five inches in diameter, yields, by means of a single long-barrelled deep well-pump, sufficient water for the whole of the works. Quite recently, a well for the E. C. Powder Company's new works, at Bean, near Dartford, was completed. It was found necessary, owing to the water level being 209 feet from the surface, to sink the first portion six feet in diameter through 150 feet of compact sand with layers of stone, and then through seventy-eight feet of chalk, completing the remainder to the depth of 300 feet by means of a boring ten inches in diameter. On testing it by means of a manual pump, the well yielded at the rate of 2,500 gallons per hour, without affecting the height of the water-level. These tube-wells, may, if required, be fitted with any type of pump, either steam or manual.

There is a stand at the end of the South Central gallery, near the entrance to the Water Pavilion, which, by some accident, has been omitted from the first edition of the Catalogue, but which is, nevertheless, well worth the attention of visitors to the Exhibition. It is numbered 374, and is erected by Messrs. W. Phillips & Son, 10, Baker-street, Portman-square, W. It contains models of drainage work, as executed by them under the direction of well-known sanatists, examples of faulty or wrongly-constructed work actually taken from houses within the last six months, specimens of their patent syphon-trap and grease-gulley, and designs of decorative work executed by them. The first thing which will strike the visitor is the model of the basement floor of 399, Oxford-street, where the business of sausage-making and pork-boiling is carried on by Messrs. Davis & Hollis, and where the drains could not be laid outside the building. The old sanitary arrangements were sadly defective, and Messrs. Phillips were called in to remedy those defects. The pipe drains were leaky at the joints; had but slight fall towards the sewer into which they discharged, having an ineffectual syphon-trap between house and sewer. No means existed of inspecting or cleaning the drains otherwise than by cutting up the concrete floor and breaking into the drain-pipes. Large quantities of fat and refuse (previously to introduction of new drainage), having free access to the drains, caused frequent stoppage. The old pipes and traps were entirely removed, and a new system substituted. The drain-pipes used are Doulton's glazed ware, with "Stanford's" spiggot joints, hermetically sealed with Russian tallow and resin composition applied

hot. The pipes are laid upon, and embedded in, Portland cement concrete, in trenches levelled to the steepest obtainable gradient throughout to the sewer. A disconnecting chamber is built between the house and sewer, through which the discharge from the main drain and branches passes by means of glazed channels, and from thence is conducted to the public sewer, after passing through a Phillips' patent "Simplex" syphon trap, which effectually intercepts the admission of sewer-gas into the drains of the house. The trap is fitted with inlet on sewer side of itself, fitted with a cap, upon removing which a drain rod and brush can be easily passed through, and the drain swept and cleansed up to sewer. Fresh air is also introduced into the disconnecting chamber to circulate through the interior drains, finding its exit above the house-top, thus preventing, by a constant current of fresh air, the formation of dangerous effluvia. To facilitate the cleaning of the drain-pipes, at the higher end of the main drain is constructed another brick chamber, through which the discharge from soil and other pipes passes over open channels. At the higher end of each branch drain, and at junctions, is fixed a small iron door, by which means every part of the system of pipes can be swept through, without cutting up flooring or damaging the pipes. The drains can also be inspected at any moment, with no further impediment than the raising of iron covers and removal of stoneware caps. The "Gulleys" taking water and refuse from basement floor are traps, furnished with iron receivers, which arrest fat and particles, and can be readily emptied (and refuse burnt) at stated intervals according to requirement, thus preventing objectionable substances from entering the drain-pipes at all. An automatic cistern has been fixed at extreme end of the drain-pipes, which discharges several gallons of water with great force at regular intervals, thus ensuring the removal of any lodgment in the pipes which may have accrued in daily working. Messrs. Phillips also exhibit another model, which shows a section of a country house with the drains carried outside the building. The drain-pipes are made of glass; at the top of the house there is a small bath, which works with both spray and shower, and the cistern discharges coloured water through the drains, so that the whole system is seen in perfect operation. One large inlet ventilator is fixed in the wall at the back of the house, and the air passes into a ventilating chamber, and thence through all the drains to an outlet at the top of the building above the roof. This insures a thorough current of air day and night. Besides a perfect system of disconnection, which prevents any deleterious gases entering the building, these drains are so arranged that they may be easily cleaned; and Messrs. Phillips, in fixing a drainage system on this plan, furnish an estimate for the thorough cleansing of the whole series of pipes once every three or six months. The "Simplex" syphon trap to which we have already referred, is shown in operation at this stand. The peculiarity of its construction is in its narrowness, both syphon drains having a very wide "dip," or "reach." This syphon, as is plainly shown here, is effective with even the smallest flush of water; it is fitted with an inspection branch covered with an air-tight screw cap, and is more readily got at for cleansing than any apparatus of the sort we have yet seen. This accessibility for inspection and cleansing is also a distinguishing feature of Messrs. Phillips' "Simplex Rain-water and Grease Gulley"; the "dip" into the drain is very steep, whilst the rain-water may be purified for household use by placing a layer of coke at the bottom of the gulley, whence it is conducted by a separate pipe to the soft-water cistern. Both these inventions are quite recent, and are publicly shown for the first time at this Exhibition. Some remarkable specimens of bad—criminally bad—drainage work are shown here, and contrasted with Messrs. Phillips' improved systems. We were shown a six-inch drain-pipe, choked up with sand and soil, which was taken from underneath the drawing-room of a large house in Essex. A local builder, who was called in by the owner to see where the stench came from, simply put a cement collar round the joint, which actually protruded above the ground, and left the choked-up pipe as it was before! Even worse was the condition of some old houses which Messrs. Phillips had to inspect and improve in the West-end. The houses, built upon a rubbish-heap, were infested with rats; a nine-inch drain went anyhow about the bottoms of the houses, and had no joints whatever; half the drains went one way and half the other; and there was a cesspool, 5 feet deep by 3 feet 6 inches square, in the area. No wonder we have typhoid even in the best quarters of our great city. In leaving this very interesting and complete collection of sanitary arrangements, we have only to call attention to some beautiful decorative designs which hang upon the walls of the stand.

As a preventive of lead-poisoning, Messrs. Quirk, Barton & Co., 61, Gracechurch Street, E.C. (462), call attention to their patent tin-lined lead pipe. This piping consists of an inner pipe of pure block-tin encased by one of lead, the two metals being so united at their surfaces of contact, as to be inseparable by any contortion. The casing of lead forms a protective coating to the tin pipe, and, being of much greater thickness than the latter, imparts to the pipe, in its combined form, the physical qualities which characterise leaden pipes; while the perfect continuity of the tin pipe protects the liquid from that contamination by lead which so frequently results from the employment of ordinary pipe. This piping can be manufactured to any weight per yard ordered; and, with regard to cost, by lineal measurement, about the same as lead pipe, the weight per yard being considerably less for an equal pressure.

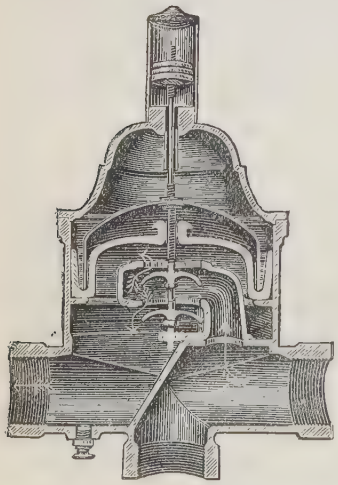
Another invention, having the same end in view, is that exhibited by Mr. H. D. Cooper, 33, Wimpole-street, W. (466), on behalf of the American patentee. This pipe is glass-lined, and has received many honours at sanitary and other exhibitions in the States. It consists of a wrought-iron pipe, into which a tube of flint glass, one size smaller, is inserted. The space between the glass and the iron is filled with a plastic substance, composed of plaster of Paris and other ingredients, forming an excellent non-conductor. This filling is uniform and perfect, all the air being pressed out of the intermediate space by the process of lining. This connecting substance firmly unites the two materials, and, at the same time, overcomes the difference of expansion and contraction between the glass and iron. The lining is protected at the ends of the sections of pipe by cement or paraffin, a thin layer of those materials being placed in the space where two ends of the pipes or fittings are screwed together, so as to make perfectly water and air-tight joints. Bends, branches, and connections are made by means of glass-lined elbows and tees, and the pipe is put up or laid in the same manner as gas and steam pipes. The pipe is manufactured in lengths of eight feet for continuous lines, and such shorter pieces as may be required for special locations. After a line of pipe is completed it forms a perfect inner surface of glass, and this is the only substance with which water or other liquids therein contained can possibly come in contact; consequently, they must remain perfectly pure. People who, in winter time have occasionally to endure the misery of burst water-pipes may be interested by the following extract from a

report of the results of a series of experiments in regard to the penetration of frost in glass-lined iron water-pipes, made by Dr. P. H. Van der Weyde, of New York and Philadelphia :—"It appears that in this pipe the non-conductive qualities of the glass and of the surrounding cement which unites it with the iron, offer a quite effective resistance to the penetration of frost, which, during a slight frost prevents the freezing altogether, and even during a severe cold of more than twenty degrees below the freezing-point, resists the influence of the cold about five times as long as is the case with purely metallic pipes. The only explanation I am able to give for this unexpected result is, that the smoothness of the pipe inside, admitting an easy sliding motion of the ice crystals over the glass surface, expanding from one spot in a longitudinal direction, has the advantage over a tube with a rough interior surface, in which the ice crystals adhere, the longitudinal expansion is prevented, and the transverse expansion finally bursts the tube."

In consequence of the epidemic of typhus at Zurich, the authorities of that city have ordained that the fountains in public schools are not to be supplied with water. Boiled water is to be supplied to the masters and pupils. Typhus is prevalent at Geneva. The epidemic at Berne quickly disappeared.

A Novel Nursery.—An encouraging account of the efforts which have been made by certain manufacturers to benefit their workpeople appears in the last report of the chief inspector of factories and workshops. At a large clothing factory in Staffordshire, the operatives, seven hundred in number, are provided with dining, tea, and club-rooms, a kitchen, a savings bank, and a surgery. A *crêche*, or nursery department, also, has been established. The *crêche* consists of two apartments, one for a play-room, and the other a cot-room, the latter being fitted with cradles, which are gently rocked by steam-machinery. This, perhaps, is a use of steam never before contemplated in this country, but it is one that answers remarkably well. The mothers are charged one shilling a week for each baby left in the *crêche*, and a matron has charge of the department, and attends to the little ones during the day. The mothers are allowed to visit the *crêche* for ten minutes in the middle of the morning and of the afternoon. The owner of the establishment has also provided perambulators which he hires out to the mothers at a moderate rate, to prevent the arm-aching and tiring business of carrying the babies to and from the mill.—*British Med. Journal.*

Stomach and Study.—Great care needs to be taken, while every effort is made to satisfy the material necessities of board-school children, and fill their bellies as well as exercise their brains, that such effort does not degenerate into wholesale demoralisation of worthless or indolent parents. The most satisfactory solution will be found—as has been already successfully done in some localities—by organising a supply of good wholesome food and comfortable clothing for all board-school children who need them, and whose parents are willing to pay just sufficient to make the business self-supporting. This leaves the responsibility with the Home Secretary of establishing day feeding-schools, for the children of those who cannot pay, at the cost of the rates, and it is with these that the greatest care must be taken to avoid pauperising the poor. A well-known correspondent points out that, for those who can pay the little which is required for cheap and wholesome food, it is a high office of charity to supply the means, by having a kitchen adjacent to the school, where the children may help in the cooking and learn the art of making cheap and good food. The addition of comfortable clothing is hardly less important, and shows another of the great wants of the poor, and how it, too, can be supplied at the cheapest rate by wholesale purchases on the club principle. This clothing also is to be paid for, probably by weekly instalments, which the children themselves would be greatly interested in bringing punctually. To show the danger of gratuitous supplies of clothing, it may be mentioned that, for ten years, Mr. Francis Peek supplied the Charity Organisation with £1,000 a year, in order that no child should be kept away from school for want of boots; but for the last two years it was found necessary to discontinue it, in consequence of its being found that three-fifths of the boots were pawned almost immediately by the parents. How difficult it is to help those who will not help themselves! but this is skilfully obviated by the committee, which obtains payment at a commercial rate for what it supplies. Some winters ago, the Rev. Mr. Bardsley organised a supply of soup, which, after paying the cost of fuel, and five shillings for the cook's trouble, he was able to sell at a penny per quart—enough, with a good lump of bread, for two children. If the efforts of this committee should show the way to the establishment of cheap kitchens for the poor, it would be performing the greatest good, and removing one of the temptations to drink; but anything like gratuitous distribution soon reacts in the lowering of wages, and finds its way into the pockets of the middleman. We can give further working particulars to any of our readers who are interested.—*British Medical Journal.*



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TESTIMONIAL.

From EDWARD C. ANDERSON, M.D., M.A., Cantab.,
Tom Law, Darlington, November 5th, 1880.

To Messrs. Krohne & Sesemann.

Gentlemen,—I have the greatest pleasure in acceding to your request that I should, from my experience of the Martin's Bandages, testify respecting their excellence.

My knowledge of the quality of Bandages of English make is limited; for, having, about fifteen months back, applied bandages sent to me from this source, and noting the evident irritation and discomfort produced by them—so great, indeed, that each patient soon discontinued their application—I ceased to recommend and use them.

In April of this year, I for the first time used the original Martin's Bandage, and since then I have applied them and none else to the limbs of nearly twenty persons suffering from a variety of complaints, such as ulcers of the leg of old standing, which had resisted all treatment for more than fifteen years; varicosities (the unsound leg of one patient, a man, measured 25 inches round the calf, against 16½ inches, the size of the sound leg; and his condition was such that, before coming under my care, it had been by his former attendant seriously debated whether or not the leg should be amputated to save life. This man goes about wearing a 21-foot Bandage, and the calf of the unsound leg now measures 18 inches); erysipelas, œdema, rachitis, &c.

Suffice it that all, both young and old, have been enabled to wear them with comfort; most of the cases under treatment have been cured, all benefited, and many although well, continue to wear them on account of their safety and the support they give rise to.

I may appear to have said too much in their favour. I can assure you that my feeling is that I have said too little. The great success attending their use evidently arises from the excellent purity, smoothness, impermeability, and non-irritating nature of the Indiarubber of which each Bandage is composed.—I am, &c.

EDWARD C. ANDERSON, M.D., M.A., Cantab.

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For the Knee-joint and Thigh.—No. 5, extra thick, 5/-; No. 6, extra thick, 7/9; No. 7, medium, 7/6.

For the Ankle, Wrist and Forearm.—No. 3, thick, 3/6; No. 3a, thin, 2/9.

For other sizes see complete Price List, also Dr. H. A. Martin's PAMPHLET, describing Method of Treatment, which are sent Post Free, on application to the Sole Agents,

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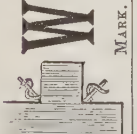

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1. Hartmann's Patented Wood Wool has an enormous capacity of absorption, so that as a rule the use of one of **HARTMANN'S HYGIENIC WOOD WOOL DIAPERS** will be found equal for all practical purposes to many of the ordinary or any other kind.

2. All disagreeable odours, and the decomposition of the secretions, are entirely and effectually prevented, owing to the antiseptic properties of the material.

3. The Diaper is very light, and will always remain flexible and soft, an important advantage over the ordinary Diaper, which is necessarily heavy, hot, and liable to chafe the skin during its use, all of which disadvantages are entirely avoided in using **HARTMANN'S HYGIENIC WOOD WOOL DIAPERS.**

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N.B.—The burning of the Diaper can be effected at any convenient time. The antiseptic properties of the material will prevent any smell whatsoever while being kept after use, until convenient to be burned. The latter process is also entirely unattended by any smell of any kind.

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Lie in three words, HEALTH, PEACE, and COMPETENCE."—*Pope.*

THE INTERNATIONAL HEALTH EXHIBITION.

ELEVENTH NOTICE.

GROUP III.—THE DWELLING-HOUSE.

CLASS XXII. (House-Drains, their Construction and Ventilation. Sewer Disconnection; Sinks, Drains, Traps, Gullies. The Disposal and Utilisation of House Refuse.)—The first exhibit in this important but somewhat miscellaneous class possesses merely a historical interest. It is a length of oaken drain-pipe, over 100 years old, found in the foundation of old Hatchett's Hotel, Piccadilly, and is exhibited by Mr. Jno. Waldram, C.E., 16, Craven-street, W.C. In the next stand (466) Mr. Ralph Winnington Leftwich, M.D., 231, Kennington-road, S.E., exhibits a model of a portable ventilating shaft for street sewer manholes invented by him. The portable shaft is provided with a box at its side filled with disinfecting fluid, so that the sewer gas, before being carried into the open air, is rendered innocuous.

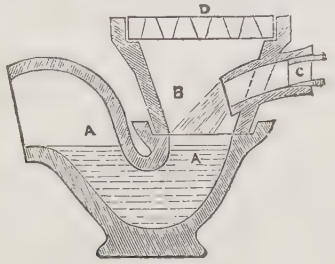
Mr. S. C. Dean, 39, Bramber-road, West Kensington, is the inventor and exhibitor (467) of ventilators for sewers, drains, works, and hospitals, purifying the gases from sewers, contagion from hospitals, and mephitic vapours from works. Mr. Dean calls his apparatus the Parcæan Sewer Gas Cremator. Recognising all the evils which arise from the escape of sewer gases, Mr. Dean says there are three modes of remedying them. First, by disinfecting the sewage *ab initio*, which is too costly to be practised by any means yet devised by science; secondly, by shafts or columns carried high in the air (the atmosphere being said to oxydise miasma)—but, as the duration of the vitality of the sewage miasms is unknown, the height of the shafts remains undetermined; and, when practically tested, it was found that shafts 300 feet high had no effect on the ventilation of the sewers at more than 300 yards from the base of the shaft—and, thirdly, by the effectual cremation of the vitiated air issuing from the sewers. It is this latter principle upon which Mr. Dean has worked, and he claims that the Parcæan Germinator fulfils all the necessary requirements of a purifying ventilator. Sectional drawings are shown at this stand illustrating the application of the system to hospitals and large public buildings, and showing how the apparatus may be most beneficially employed. A Cremator 2 feet high is warranted to disinfect over 20,000 cubic feet of air per day; the temperature necessary for the extirpation of the sewage virus can be cheaply and rapidly attained and maintained; and provision is made against any explosion of the sewer gas in its contact with the incandescent substance in the Cremator. The other invention which Mr. Dean shows here is the "Pactolean system of aërated filtration," which was patented on January 1 of this year, and is designed for the treatment of sewage and foul waters. All foul waters during filtration lose a portion of their natural constituents, and after filteration a partial decomposition takes place, in order that these natural elements may be regained. The decomposition of the water is fatal to all animal life, and is due, as Mr. Justice Williams once said in the case of the Lea Conservancy *v.* Hertford sewage, "to some supposed radical defect in every chemical purification process, taken alone, and without being supplemented either by irrigation over a large surface of suitable land, or some equivalent." By aërating the water on the Pactolean system, Mr. Dean claims to have prevented the necessity for this decomposition, and to be able to turn the effluent water into natural streams in a condition in which all these constituent elements to which we have referred are present. These filters can be made in a portable shape of wood or metal, or in larger sizes of bricks, masonry, or concrete of sufficient capacity to purify from a few thousands to one hundred million gallons per day. The bottom of the filter is made of a series of hollow bars, perforated in their lowest part; they fix in a cross-bar, from which rises another hollow tube. When it is desired to aërate or force a purifying current through foul water, steam, or heated air, or gas is forced through this tube, whence it passes into the pipes and emerges through the perforations, aërating and purifying the water whilst it is being filtered. Any filtering carbon can be used as media in this apparatus, but the inventor says he prefers a coarsely-ground composition of coal, clay, marine shells, tan, borax, and soda in specified proportions. This filtering media can be partly revivified without removal by forcing superheated steam or air through the filtrant, when the apparatus contains no water. When the sewage requires pumping, receiving-tanks, and a simple process of precipitation are provided, the dried precipitate forming a valuable manure. The inventor thus sums up the advantages of the "Pactolean":—"Immense quantities of impure waters cleansed and oxygenated with real economy of space; no acres required; it extirpates all virus while you have it compact and under control; checks the increasing spread of inward cancer; the increased value of the manure produced by the precipitants used; the filtrant can be revivified without removal; the spent filtrant makes an excellent and nearly smokeless fuel; and where the filters are fitted with the Parcæan Sewer Air Cremator, can be worked in a populous neighbourhood without danger of spreading infection or creating a nuisance." Visitors of a scientific turn might do worse than spend a few moments with Mr. Dean and his inventions.

Mr. Charles Hawksley, 30, Great George-street, Westminster (470), shows drain-pipes of stoneware and cast-iron, respectively, joined together to illustrate a house-drain, and terminating in a vertical length of lead soil-pipe fitted with one or two ordinary drain-pipes. To this is attached a common plumbers' force-pump and two ordinary six-inch gas-pressure gauges to exhibit a method of testing the soundness of house-drains while in their usual working condition. This method consists in the introduction into the drain of a

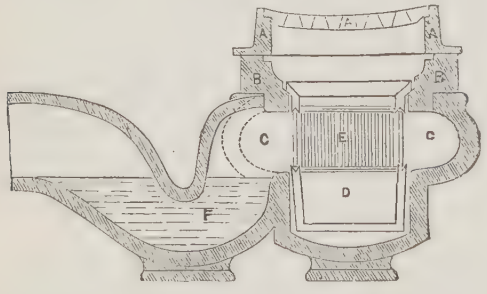
The ASSOCIATION FOR THE SUPPLY OF PURE VACCINE LYMPH, formed 1877, 3, Hemmings-row, St. Martin's-lane, London, W.C.; near Charing-cross Telegraph Office, 448, West Strand, W.C. Sole agents for Dr. WABLOMONT'S Calf Vaccine.—[ADVT.]

slight pressure of air—say, a pressure equal to a vertical column of water about two inches in height. Of course, any leakage in the pipe is, in these circumstances, immediately shown by the water in the gauges. This simple plan of testing might well be applied in every case after drainage works have been completed, and at intervals subsequently.

That some system of testing is in many cases urgently required is proved on the next stand (471), where Messrs. R. Houghton & Co., 21, Sloane-terrace, S.W., show specimens of bad workmanship which have fallen under their observation in the course of their business. Here, for instance, is a piece of a drain-pipe taken from a house in

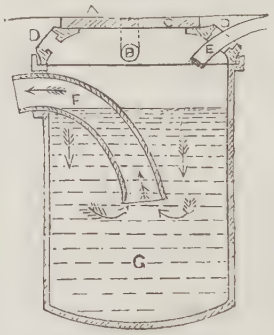


the neighbourhood of Hyde Park, after being laid for *only three days*. In this case the waste from the nursery sink ran into a 3-inch ventilating pipe, and the sewer gases were carried right into the interior of the house; and a huge lump of tow was shoved, in another place, between two pipes which did not fit properly. Contrasting with these and other specimens of similar criminally bad workmanship, Messrs. Houghton show some drain-piping of their own laying and joining, which are really excellent examples of how work of this sort ought to be done. They have also diagrams of house drainage, giving the basement plans, and demonstrating the soundness of their own methods of treating these subjects. Amongst the special appliances used by this firm are two or three which deserve special notice. The first is an improved gulley for sink and waste bath, of which we give an illustration. It has many very solid advantages to recommend it. The trap, A, has a syphon action, and, being smaller than the drain, a good flush of water is ensured, and the gulley is made practically self-cleansing. The position of the waste-pipe, C, for the sink or bath being lower than the grating, prevents any splashing over it. The top, B, being reversible, can be fixed to



suit the drain and waste-pipe, and the whole apparatus is thoroughly ventilated by means of an iron grid, D. The gulley also forms a drain for the area, and being fixed within two inches of the surface, is especially adapted to houses where the fall is limited. Messrs. Houghton are also the makers of an improved interceptor for solids, designed for stables, garden-paths, yards, &c., of which we give a sketch, and which will show the mode of action. A, A, is an iron grid and frame, which rests upon a reversible top, B, B. This allows of the trap being set at any angle to suit the drain. C, C, the chamber round the grating, allows of the egress of the liquid, D being a movable iron pot, with grating at E for straining off the liquid. The trap, F, is provided with a means by which it may be easily cleansed, and the interceptor, as a whole, is an effectual preventitive of the stoppage of drain-pipes by the admission of solid matters. The other apparatus shown by Messrs. Houghton which we ought to mention is a fat interceptor for scullery sinks, which, like the two preceding appliances, thoroughly secures the objects for which it is designed. The accompanying figure shows a sectional elevation of the fat chamber. G is the chamber for the reception of the loaded water from the sink. The pipe E, which discharges the water into the chamber, should be of lead, and not less 2 in. in diameter, and should have an access-trap fixed underneath the sink, and the discharge should be over the water in the chamber, so as to prevent the adhesion of grease to the discharge-pipe, common to the delivery-pipes when dipped in the water. The outgo, with bend, is marked F. The cover top, shown at A, can be of any suitable material, and is closed in pending the collection of grease in the chamber G. The outgo, F, is fixed in centre of the chamber, which allows of the fat clinging round the sides and floating on the surface of the water, so that there is ample room for sediment or sand below the bell-mouth outgo. In connection with this interceptor, a ventilating-pipe is provided, which terminates as far from the scullery window as possible.

Mr. Joseph J. Ellis, of the Ellistown collieries, brick, pipe, and fireclay works, Ellistown, near Leicester (472),



has a collection of Ellistown sanitary ware, ventilating traps, &c. Major Francis H. Noot, Rookwood, Parkhurst, Isle of Wight, shows (473) some plain lengths of double half-socketed drain-pipes and a length of pipe of the ordinary pattern to show the difference in the mode of junction between his pipes and those of the old pattern. Messrs. Jno. Watts & Co., Broad Weir, Bristol (474), show a patent asphyxiator for applying the smoke-test to defective drains, and for disinfecting rooms, bedding, clothing, &c.

An interesting model is exhibited by Messrs. H. Greene & Son, gas and water engineers, 115, Cannon-street, E.C. (483), to illustrate the utilisation of tidal power on C. Maynard Walker's patented system. The model is intended to illustrate the practical working of the patented method of utilising the rise and fall of the tide, in connection with the lifting of sewage from a low-lying storage tank to such an elevation as will enable it to run out to sea by gravitation on the receding tide, and (as far as the limited space at disposal will permit), represents a section of the sea front of a seaside town situated at a level which is but little above high water, and has also a long foreshore (which, again, the space at disposal prevents being shown at the proper gradient) sloping to low water. The main sewer of a town so situated has, of necessity, an extremely small gradient, and will be, more-

over, tide-locked for several hours a day—during which time the flow of sewage is stopped even in its already too slow speed—thus allowing time for the sewage to engender offensive smells and germs of disease, which escape into the streets and houses, literally poisoning the air of the town. The only alternative methods known to engineers hitherto have been either to construct an artificial gradient, and run the sewage to a storage tank at a sufficient depth, and afterwards pump it up again on to the tide (as in the case of London and some other towns), or to occasionally force out, by flushing, the sediment in the sewers caused by sluggish flow. Both these methods involve a considerable annual expenditure for steam power and attendance, involving a burden upon the ratepayers which might be lightened to a very large extent by using the inexhaustible power of nature, which, in the form of the tide, actually passes by the pumping station with tantalising recurrence twice every twenty-four hours, a power which (as the model illustrates) might by the simplest possible exercise of engineering skill be utilised to convey the sewage or effluent water of our towns to the "open sea," that great deodoriser of sewage matter. The method to be employed requires neither machinery, steam power, or attendance—the whole process being absolutely automatic, and working with the unbroken regularity of nature.

The London Sanitary Protection Association, 1, Adam-street, Adelphi, W.C., (485) has a very instructive collection of specimens of defective plumbing removed from London houses, such as water-taps without any seal, a ventilating pipe choked with birds' nests, defective connection between sinks and soil pipes, pipes wholly and partially choked with deposit, pipes and traps corroded by sewer gas, and models of good pipes, traps, &c. This exhibit ought to open the eyes of householders to the dangers they incur by allowing the drainage arrangements of their dwellings to go for years without any sort of inspection, and ought also to serve to bring before the public the advantages of such an association as this, which has as its president the Duke of Argyll, and and an influential list of vice-presidents. The council is composed of well-known public men, all of whom give their services gratuitously, and the Association provides it members, at a moderate cost, with such advice and supervision as shall insure the proper sanitary condition of their own dwellings, besides offering advice as to the best means of remedying defects in the houses of the poorer classes. The Association rightly believes that no system of drains or other sanitary appliances can be depended upon to remain in perfect order without skilled inspection; and this skilled inspection it supplies cheaply and efficiently. We cannot do better, by way of impressing upon the public the great utility of such institutions as this, than recite the privileges to which its members are entitled:—(1) A report by the engineer of the Association on the sanitary condition of one dwelling, with a sketch diagram of pipes, and with specific recommendations, if necessary, as to the improvement of drainage, water supply, and ventilation; (2) The inspection of any alterations in the sanitary fittings which may be carried out by the advice, or with the approval, of the officers of the Association; (3) an annual inspection of his premises by the engineer, with a report as to their sanitary condition; (4) occasional supplementary inspection and advice concerning the dwelling in respect of which he is a member, whenever this advice may be desired, at such fee as may be fixed from time to time by the Council; and (5) reports by the officers of the association as to the sanitary condition of any dwellings designated by any member, or of any plans for proposed buildings, on payment of a fee to be fixed by the council from time to time, with special relation to the rent of the premises to be inspected.

The Birmingham Sanitary Association, Upper Priory, Birmingham (479), are the makers of Potts's Patent Edinburgh Air-chambered Sewer and Soil-pipe Trap, which has had a long and successful career at many metropolitan and provincial sanitary exhibitions. It is claimed for this trap that the introduction of sewer gas into dwelling-houses, either by suction from within, by pressure from without, or by absorption and evaporation, is rendered absolutely impossible, by the simple expedient of leaving an open space freely exposed to the air between the sewer and the house-pipes. The trap is made of stoneware, well glazed. Immediately below the earth level is an air chamber, 2 ft. 6 in. or 3 ft. long, in the middle of which is a division plate or diaphragm, dividing the air chamber into two parts, and assisting in directing the gas out of the first division of the chamber, so creating a current through the trap. At the side of this air chamber is an open grating raised an inch or more above the ground level, having a second grating or tray below it, on which charcoal or other disinfectant may be placed, although the patentees do not think this is necessary, and never use it. These air chambers are right over the line taken by the soil on its way to the sewer, but before it reaches the sewer, the soil is made to pass through a water-valve or syphon, which, being contracted in form, has a quicker fall than the ordinary syphon, and thus ensures the freedom and cleanliness of the drain-pipe. Rain or bath waste-pipes may be made to join the soil-pipes near the disinfecting grating, so as to aid in flushing the trap. Immediately over the syphon is a pipe leading to the roof to take any pressure of sewer-gas off the syphon, but if it is not desirable to fix the pipe, an inspection-hole may be made for the purpose of cleansing the drain. By means of this apparatus the house drain is absolutely disconnected from the sewers and the sewer-gas is freely exposed to the air, and thereby rendered innocuous. It may be well to reproduce the testimony of Dr. Henry Littlejohn, Medical Officer of Health for Edinburgh, as to the efficiency of this system of sewer-poison prevention. Dr. Littlejohn says:—"I have very carefully inspected, on several occasions, the system of drainage carried out by means of the "Patent Edinburgh Air-Chambered Sewer Trap," in a large educational establishment near Edinburgh. This system of drainage was a novelty to me; but its special advantages were at once apparent. All the sanitary appliances, whether connected with refuse water conveniences or the ordinary water supply, are entirely disconnected from any direct junction with the drains, and thus the possibility of the entrance of sewage gases by any channel into the building is entirely prevented. The plan is simple, not costly, and does not require regular supervision. The system in question can be applied to houses, whether detached or otherwise, and I feel certain that if it were extended to all houses in connection with drains, such diseases as diphtheria and typhoid fever would be rarely heard of."

Messrs. Henry James & Co., Northumberland-street, Charing-cross, who are the London agents for the Birmingham Sanitary Association, exhibit on the same stand Truss's Patent Water-waste Preventing Valves for water-closets and urinals. The valve is constructed to give a flush and an after-flush, thus ensuring a given quantity of water in the basin. It has been approved by all the London water companies. The same principle is also applied to lavatories. A treadle is fixed to the front of the lavatory, by standing on which the water is retained in the basin. Immediately pressure is removed the water runs

out, and, at the same time, there is a rapid discharge of clean water from the top of the basin, which effectually cleanses its surface.

Mr. Henry Ough, 16, Austin-friars, E.C. (491), is the agent for Stamford's patent joint for fire-clay and stoneware pipes. This is practically a turned and bored joint, no cementing or luting is required, and the joints are absolutely watertight. The Patent Victoria Stone Company, Kingsland-road, E. (471), exhibit sinks and other sanitary appliances made of their stone. The Victoria stone is well known as one of the best materials for pavements, owing to its marvellous durability. In this Exhibition it is laid in the entrance hall, the American bar, and on the terrace steps.

A Hospital Fête.—With the object of increasing the funds of the London hospitals, the Executive Council of the International Health Exhibition, at the instigation of H.R.H. the Prince of Wales, their president, have decided to hold a grand evening fête on Wednesday, the 23rd inst., the proceeds arising from which will be handed to the Lord Mayor, to be distributed among the various Metropolitan hospitals by the organisations of the Saturday and Sunday Hospital Funds. This fête will be under the special patronage of their Royal Highnesses the Prince and Princess of Wales, who have announced their intention of being present. The wishes of their Royal Highnesses, to whom the initiative of the fund is due, have been readily acceded to by a large number of exhibitors, many of whom have consented to place their stalls and refreshments at the service of the fund. Presents—to consist of fruit and flowers only—to be sold by ladies in aid of the fund will be gratefully accepted, and should be sent in so as to be received on the morning of the 23rd. The Council believe that they have only to make this known to secure such presents from the large classs who take a special interest in one of the most popular and useful of charities. All consignments of this nature should be addressed to the Marquis of Hamilton, Chairman of the Hospital Fête Committee, International Health Exhibition, South Kensington. The grounds will be illuminated by 20,000 variegated lamps, and special effects will be introduced in connection with the illuminated fountains. The doors will open at 7.30, thus enabling visitors to dine at the Exhibition. The fête will commence at 8 o'clock. Evening dress will be worn. The ordinary admission will be suspended at 5.30 p.m., and the Exhibition will be closed at 6 p.m.; a special rate of 10s. will be charged for admission to the fête.

HOW TO TELL PURE LOAF SUGAR.

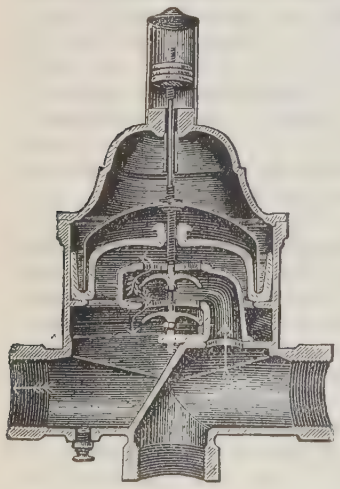
A correspondent asks the New York *Sun* the difference between the sugar which is sold in apparently smoothly cut lumps and other white sugar, the lumps of which are somewhat rough on their surfaces. "The difference is considerable, and the latter, which is pure loaf sugar cut into lumps, always commands a higher price in the wholesale market, and cannot be adulterated. It is called in the market 'cut loaf.' The former quality of sugar is what is known as 'cubes.' The cut loaf sugar is made in lumps of fifty pounds out of cane sugar, then sawed into slabs, and these slabs are partly cut through and partly broken. It is easy to distinguish the marks of cutting and breaking on each lump.

"The cube sugar is made of soft sugar and pressed in moulds, which gives the smooth appearance. The cut loaf sugar will keep its shape in any climate, and is suitable for shipment. The cube sugar will sometimes on a sea voyage resume the consistency of the soft sugar, and the change of form is due to adulteration.

"The safest sugar for any one to buy is pure loaf sugar, and it is much sweeter than any other. The principal substance used in adulterating sugar is glucose, which is sugar made from various vegetable substances, chiefly grain. While glucose is sweet, it is easily detected by the expert because it is not so sweet as cane sugar. It is, nevertheless, very extensively used to adulterate cane sugar and produce the cheap sugars which are sold in the market. Reputable dealers sell it as glucose, but there are many dealers who sell glucose for sugar. The nature of the glucose is to make a close, sticky sugar; it does not produce grains, like cane.

"The polariscope readily exposes any adulteration of sugar, but there is need of some ready household test by which housekeepers, who cannot afford a polariscope, can tell whether they are buying cane sugar or glucose. The glucose is not harmful as food, but its sweetening properties are limited. The official test of cut loaf sugar is 100 per cent. Other refined sugars in lumps do not always reach that test. At present the precise form of the genuine cut loaf sugar has not been counterfeited."—*Scientific American.*

The latest novelty in advertising is a patent medicine manufacturer advertising for bald men who are willing to have advertisements painted on the top of their heads "for a high pecuniary recompense."



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Silver Medal—Highest Award—Stockport Gas Exhibition, 1882. Eleven competitors.
Sanitary Institute of Great Britain, Newcastle, 1882. The Only Medal.
Sanitary Institute of Great Britain, Glasgow, 1883. Star Certificate. This Certificate is the Highest Award, and only obtainable by those who already hold the Medal of the Institute.
National Health Society's Exhibition, London, 1883. Silver Medal.
International Food Exhibition, London, 1881, Silver Medal. 1882, ditto.

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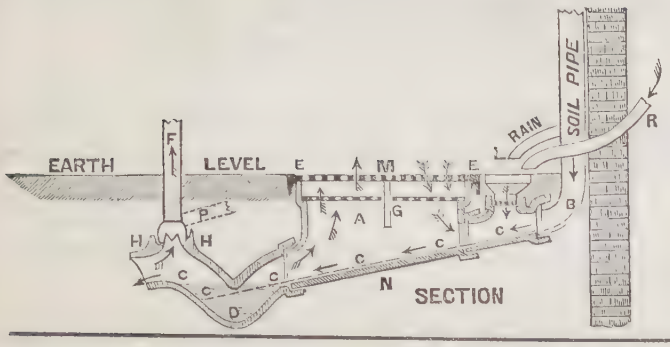

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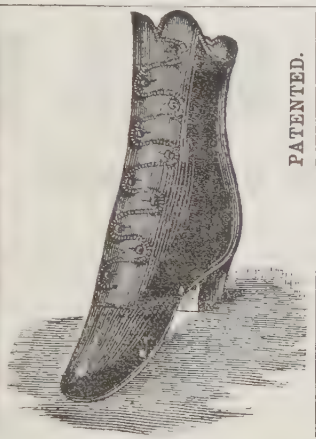

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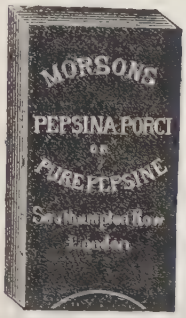

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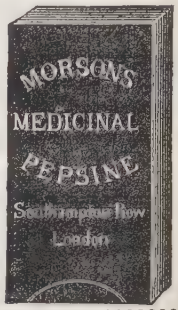

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TWELFTH NOTICE.

GROUP III.—THE DWELLING-HOUSE.

CLASS XXII. (House Drains, their Construction and Ventilation. Sewer Disconnection, Sinks, Traps, Gullies. The Disposal and Utilisation of House Refuse) *continued:*—"Death in the Dustbin" is the somewhat alarming announcement, in large letters, over the stand of Mr. Robert Nicoll, 12, Buckingham-street, Charing-cross (494), in this class. Mr. Nicol deals with the question of the better disposal of the sewage of the Metropolis and other large towns, and exhibits models showing the mode in which he would desire to see this important work carried out. Mr. Nicol is the author of a pamphlet entitled "Cloacina," a treatise on the utilisation of town sewage, in which he sets forth in considerable detail his views on this question. The pamphlet, which our readers would do well to study for themselves, is summarised by Mr. Nicol himself as follows:—1st. Where possible, it is desirable to encourage piecework (or home industries), and removal to decent dwellings in healthy districts, in place of congregating labourers in workshops. 2nd. That attention should be given by employers to sanitary arrangements in workpeople's dwellings, and opportunities to create and enforce reasonable regulations should be afforded by the public authorities. 3rd. Employers should be required to keep a register of the addresses of all in their employ, and to share in penalties for connivance, or in the actual infringement of sanitary laws, and that connivance may be constituted by employers wilfully avoiding to report to local authorities breaches of these laws. Landlords to be classified with employers in respect to certain classes of tenants or lodgers. 4th.—That the harsh observance of the Poor Laws should be ameliorated, so as not to break up homes, cause the loss of trade tools, and unnecessarily to drive breadwinners into workhouses. 5th.—That inasmuch as bad drainage and filthy dwellings lead to drunkenness and crime, the deodorising of sewage and removal of offal is the duty of the public authorities, who should be empowered to construct subways for that purpose, the walls of which may be capable of being utilised for the transit of telegraph and other wires, also for gas and water services. It will be observed that Mr. Nicol's pamphlet embraces questions other than those directly connected with sewage-disposal. As regards this particular matter, however, Mr. Nicol has a strong opinion that we are proceeding on an altogether wrong line. He says in his pamphlet—"In towns, the application of water to remove excrement out of sight appears to be accepted as a *sine qua non*. Now, the excessive admixture of water with sewage has rendered abortive all efforts to intercept town sewage at the sewers' mouth; that is to say, with the view to its profitable utilization. I, therefore, suggest that the present town sewers should only be employed to receive rainfall or surface water, and the overflow of sinks, cisterns, and baths should be made to run into trapped open-air gullies, thence to the sewers, that is, distinct from actual sewage pipes, and the latter should descend from house-closets to intercepting tanks placed in a continuous trench, or subway, close to the curbstones of pathways. The subways would be available for the conduct of telegraph, telephone, and electric wires, also for pneumatic tubes. But, before leaving the consideration of the use of water in closets, I would suggest that—no matter whether cisterns or direct supply be the future rule (as applied to dwellings)—that there should ever be a small service cistern for each closet, that is to say, where separate closets for flats or dwellings are in use. Specimens of this method are in use at the stations of the Metropolitan Railway; but where arrangements of the nature of latrines, resembling those at Covent Garden Market, are to be made for blocks of buildings, and for the common use of the whole of the inhabitants, keepers would see to the observance of rules intended for the benefit of all. The small-water service referred to is, by mechanical action, charged separately from the main cistern, with only a sufficient quantity of water (on each occasion) to remove excrement." Models are exhibited to show the practical application of this system. The first model is a dust-bin, with wire baskets attached, the latter to contain dry household waste, for which there is a ready sale if separated from ashes. This bin can be removed by a pole and slings, and its contents emptied into ordinary dust-carts, or the contents may be shot into a sewage tank. The dust-bin can be made instantaneously air-tight, and can at once replace the dust-bins now in use. The second model is called a garbage bin, and is intended to contain household offal of a decomposing nature; it contains a deodorising sifter, which, on being rapidly moved on the sliding-rods to which it is attached, distributes over each deposit of garbage a needful quantity of the deodorising substance. This bin can also be kept air-tight, and might be introduced immediately into general use. The third model shows Mr. Nicol's system for treating sewage matter. It is a representation of subways proposed to extend beneath pavements or footpaths; the earth is supposed to be removed, and a breach made in the bricked subway, showing the interior. The walls of the subway will be covered with a vitrified surface, in order to assist in the insulation of telegraph and telephone wires, also the several services of water and gas are shown, which can be turned on and off as may be required by the occupants of dwellings. As the walls of the subway will be necessarily low beneath the surface, in order to intercept sewage, almost an illimitable number of telegraph and telephone wires can be placed at the service of the public.

The fourth model is a tank placed to receive sewage discharged from houses by the usual trapped drain-pipes. Within this tank there are two compartments,

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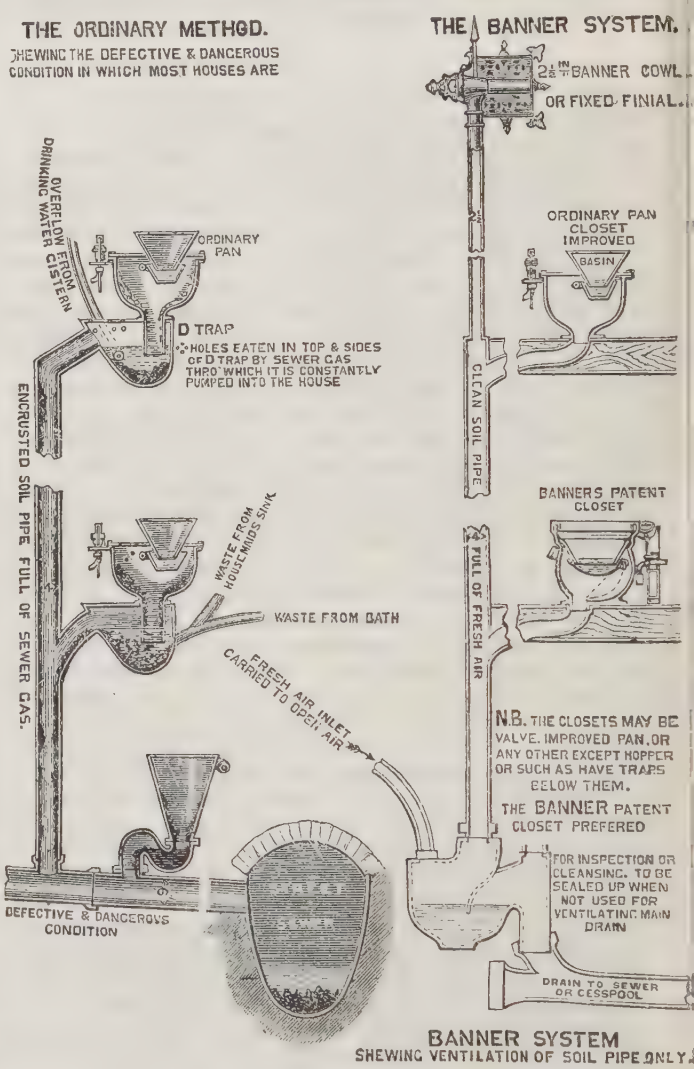
formed by galvanised iron network, one compartment being charged with crushed flint (alone or in combination with lime, &c.), and the other compartment with animal and vegetable charcoal (alone or in combination), the sewage having descended into the tank, the water conveying the same will then filter through the compartments, and finally pass to the street sewer or drain. The fifth model shows a pavement, before which it must be supposed there is an ordinary curb, gutter, and gulley-hole, and that the latter serves to ventilate the subway. Part of this model consists of a wrought iron framed flap to hold paving or asphalte; this flap is shown raised upon its hinges, in order to permit the sewage tank to be brought to the surface by a portable crane, which will deposit the tank upon the dray or waggon intended for its removal. road scrapings, and other precipitating (and when needful deodorising) substances having been previously sent down a funnel upon the top of the sewage discharged from the dwellings, and the tank is then made air-tight for removal. Whether this somewhat elaborate scheme can be worked at a reasonable cost, practical experiments alone will show. Mr. Nicol contends that the cost would be smaller than our present systems, that the work would be more efficiently done, and that the solid sewage would be used to great advantage as a fertiliser. At any rate, time would be well spent on an inspection of these models by persons interested in the sewage question; and certain it is that, could any system be devised by which the diseases arising from our present imperfect means of treating town refuse were prevented, the gain to the community would be so great as to more than counterbalance any extra initial cost. We must not omit to notice another of Mr. Nicol's exhibits. It consists of a "twin-cistern," and the design admits of one cistern being turned off for occasional cleansing, while the other remains in use; and, except for the short period of cleansing the purifying and filtering compartments, the twin arrangement will combine to afford an abundant supply of absolutely pure water for drinking, cooking, or other similar purposes. The covers of the cisterns, by a simple mechanical action, become air-tight, so that neither atmospheric disease-germs nor contamination of any kind can pollute the water contained therein.

Domestic sanitation and kindred topics are practically treated of in another stand in this class (502) which deserves more than a cursory mention. Mr. Ed. Gregson Banner, C.E., of the firm of Banner Brothers and Co., 11, Billiter-square, E.C., is the author of the system of sanitation known by his name—a system which has withstood the most severe tests and has thoroughly answered every claim which has been made on its behalf.

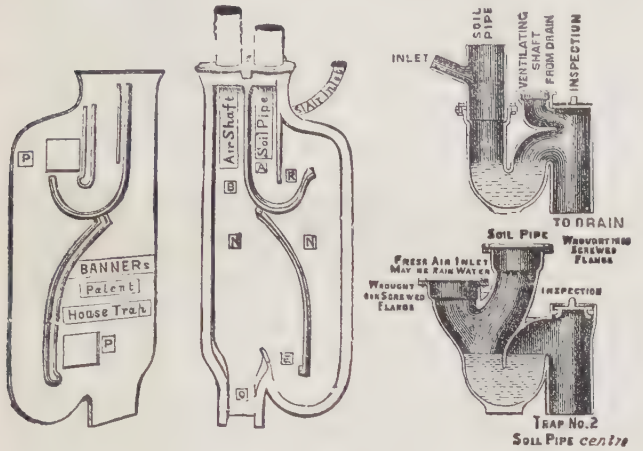
The illustrations here given are designed to show the difference between the old system (we say "old" although the drainage in thousands of houses is quite as bad to this day as that here represented) and the system introduced by Mr. Banner, first into his own house and afterwards into many hundreds of public and private buildings. By the Banner system the drains and soil-pipes of houses are, instead of being coated with filth and full to the brim of sewer-gas, kept clean and a constant current of fresh air is passed through them; the patent cowl at the top of the ventilation pipe is pierced both back and front, the end best adapted to exit being always held to the direct current of air. One of the most important details of this system of ventilation is the dip-trap to be used, of which we show three varieties as manufactured by this firm.

We have had occasion in former numbers of this Journal to speak of the excellence of these appliances. They fulfil every necessary requirement, being air-tight, self-cleansing, and able to ventilate not only soil-pipes, but the sewer or cesspool also. The double-dip trap is specially to be recommended in these respects. Of a grease-trap, made by the same firm and exhibited here, we remarked some time ago that "it is a necessary addendum to every sink." The Banner Patent Water-closet, of which we give a sketch, is another very useful invention, easily cleansed, and absolutely safe in operation. The receiver is made in one piece of white earthenware, with inlet for water and flushing rim, A. Below this rim is a channel, B, for containing water, and the basin, C, is made with a turnover rim, E, at the top, to dip into this channel, so forming a hermetically-sealed joint. The saucer, F, is also of earthenware, and is fitted on to a metal bush, H, which fits into a slot, I, on the axle, which, being made very short, is less


THE ORDINARY METHOD.
SHEWING THE DEFECTIVE & DANGEROUS CONDITION IN WHICH MOST HOUSES ARE
THE BANNER SYSTEM.
2½ IN. BANNER COWL OR FIXED FINIAL.
DRINKING WATER CISTERN
OVERFLOW FROM CISTERN
ORDINARY PAN
D TRAP
HOLES EATEN IN TOP & SIDES OF D TRAP BY SEWER GAS THRO' WHICH IT IS CONSTANTLY PUMPED INTO THE HOUSE
ORDINARY PAN CLOSET IMPROVED
BASIN
CLEAN SOIL PIPE
ENCRUSTED SOIL PIPE FULL OF SEWER GAS.
WASTE FROM HOUSEMAIDS SINK
WASTE FROM BATH
FRESH AIR INLET CARRIED TO OPEN AIR
FULL OF FRESH AIR
BANNERS PATENT CLOSET
N.B. THE CLOSETS MAY BE VALVE, IMPROVED PAN, OR ANY OTHER EXCEPT HOPPER OR SUCH AS HAVE TRAPS BELOW THEM.
THE BANNER PATENT CLOSET PREFERED
FOR INSPECTION OR CLEANSING. TO BE SEALED UP WHEN NOT USED FOR VENTILATING MAIN DRAIN
DRAIN TO SEWER OR CESSPOOL
DEFECTIVE & DANGEROUS CONDITION
BANNER SYSTEM
SHEWING VENTILATION OF SOIL PIPE ONLY.

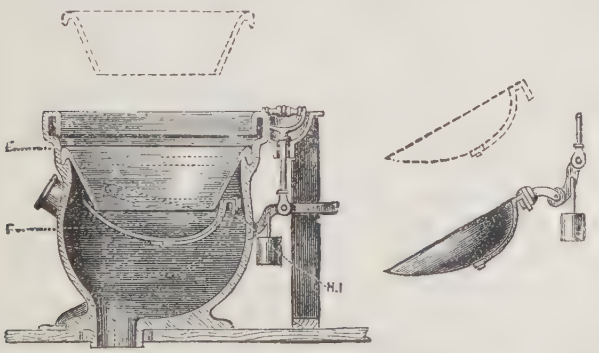
likely to get broken. The dotted lines in the figure indicate the position assumed by the saucer, F, when the handle is raised, so as to discharge the contents through the outlet, M. Finally, the whole apparatus is ventilated by the outlet arm emerging from the saucer. Among the other exhibits shown at this stand is a patent cast-iron air-tight cover for man-holes, catch-pits, cesspools, &c., the distinctive feature of which is that no part of it can possibly corrode or rust, that it is fitted without hinges or joints, and that no key is necessary to lift it. The edge of this stand is made hollow, so as to illustrate Messrs. Banner's method for conveying telegraph, telephone, and electric light wires underground; a method which, if adopted in London,

would get rid, once and for all, of the dangers (to which our eyes are just being opened) of conveying these wires across the streets. Judging from some illustrations which we saw here, Messrs. Banner, too, have succeeded in overcoming a difficulty which has puzzled generations of architects, viz., how to thoroughly ventilate large public buildings by an apparatus which shall not be an excrescence



upon the architectural design. Their finial ventilators, it is apparent, may be adapted to any style of building with the certainty of securing efficient ventilation. Only one other feature in this stand remains to be described. Models are exhibited here of Banner's system of sewer, as distinguished from house drain, ventilation. Each branch of this model represents about 1,500 ft. of sewer, ventilated without any grating or holes in the roadway. By this system lamp-posts may be utilised as fresh-air inlets, and by means of two shafts, which need only be eight or ten inches in diameter, fixed at either end of each branch, and provided with cowls of proportionate size, one to give an up and the other a down draught, the formation of sewer-gas is made a matter of impossibility.

Mr. William Batten, 150, Lozells-road, Birmingham, shows (475) his patent manholes and ventilators for street sewers. Mr. Batten acts upon the principle that in existing



circumstances, the only efficient mode of ventilating street-sewers is by open grids in the roadway, but he contends that in most towns, and in London especially, we have too few of these gratings, and that what we have are themselves defective in design. Mr. Batten's patent provides a combined ventilator, flushing-box, and lamp-hole for sewers.

Without entering into a minute description of the apparatus, it may be stated that the whole of the road-waste is retained from falling into the sewers by two external chambers which receive it. The construction of the arrangement is such that while the ingress of water and road waste is carried on, provision is made for the egress of sewer-gases, so that the inlet of the one and the escape of the other may be always continuous. The removal of the solid matter is easily effected in a few minutes, by simply inserting a piece of bent flat iron into the dirt-receiving boxes, or external chambers. By withdrawing a bolt, that temporarily fixes the cover, free access is given to the ventilating shaft for the introduction of a lamp, or for the purpose of flushing the sewers. The invention has many advantages over the ordinary man-hole, especially in regard to the separation of the solid from the liquid matter, readiness of removal of the solid, free ventilation of the sewers, and easy access to them for all purposes. The method has been largely adopted—in all about three thousand man-hole covers and ventilators are at present in use in Birmingham, Walsall, Warwick, Balsall Heath, Smethwick, Droitwich, and numerous other sanitary districts. It is worth mentioning that these man-holes are fitted on the top with wooden blocks, so that the danger of horses slipping on the iron grid, and the nasty jolting which is experienced when riding over most of the ventilators at present in use are both done away with.

Another sewage ventilator and dirt-box is shown by Mr. Hugh S. Cregern, of Bromley, Kent (488). This invention entirely dispenses with the necessity for a dirt-box, as all foreign substances are prevented from falling into the drains by having the openings in the gratings placed over a recess or trough which catches all the dirt passing through. The area of these ventilating openings is made equal to the area of the pipe leading to the sewer. Mr. Cregern also shows a patent air inlet for the ventilation and aëration of house-drains, which is made on exactly the same principle; a trough being provided, in this case, too, to prevent foreign substances from falling into the drain. This ventilator is applied, not only over the ground-pipe, but may be fitted at each floor to ventilate the pipes leading from bath-rooms, closets, &c.

Mr. Joseph Parrott, Cromwell-terrace, Wallington (483), is the patentee of another of the numerous appliances shown in this Exhibition for preventing the ingress of sewer-gas into the house. Not only does he claim to have done this, but he asserts that his self-acting valve provides that any chokage of the soil-pipe can only take place outside the house, where it can be readily remedied without causing the slightest inconvenience to the occupants. The soil or discharge-pipe of the house leads to a trap outside the house. This trap is enclosed in a box containing chloride of lime, or other disinfectant, and filled up with moss, peat, or other similar substance, which serves the double purpose of aiding the disinfection of the gases and of preserving the water in the trap from frost. Another disinfecting box is provided, which is filled with chloride of lime and charcoal, and into this box the sewer-gas is led, whence, after deodorization, it passes to the upper box already described, where it undergoes a further process of purification. This upper box is intended, however, mainly for the deodorization of any noxious emanations from the house, and at the top of this receptacle are a number of perforated holes, whence the gases in their innocuous form escape into the air.

An apparatus designed to effect automatically the periodic flushing of the drains of the district in which it is fitted is exhibited by Mr. Robert Robertson McKee, 34, Main-street, Kirkcaldy (484). The water from the street main is allowed to flow through a small pipe to fill a large tank or holder. When the tank is full, the water raises a float which tilts a lever, which, in its turn, releases a lower float. The water is then admitted into a cylinder, in which is a large valve. As soon as the cylinder is full, the valve is forced open, and the water is forced into the

drain at a considerable pressure. The reverse of the operations we have described then takes place, after which the tank again begins to fill. Of course, the timing of the flush is regulated by the speed at which the water is admitted into the tank.

Mr. Jno. C. Botham, city engineer, Salisbury (487) has designed a plan for combining the chimneys of several floors, so as to ensure a sufficiently strong upward draught, while preserving uniformity of architectural style. This combined chimney will receive the products of combustion from two or more floors, will preserve the chimney-tops from the direct action of the wind, and will provide an enlarged space into which each floor will discharge. The chimney-top has at its sides and ends louvres or openings slanting upwards towards its interior, so as to divert the external currents of air which pass through the openings into an upward direction within the chimney-shaft.

A NEW TEST FOR LEAD.

By A. W. Blyth, M.R.C.S.

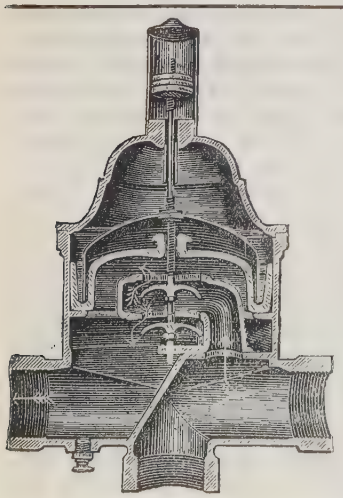
A solution of cochineal is prepared by boiling the ordinary commercial cochineal in water, filtering, and then adding sufficient strong alcohol to insure its preservation from mold. A few drops of this solution, added to a colourless neutral or alkaline solution containing dissolved lead, strikes a deep mauve blue to a red with a faint blue tinge, according to the amount of lead present. The test will distinctly indicate a tenth of a grain of lead per gallon in ordinary drinking-water, and by comparison with a solution free from lead, much smaller quantities are indicated.

In searching for traces of lead in water, it is convenient to take two porcelain dishes; into one place 100 C.C. of the water to be examined, and into the other a solution of carbonate of lime in carbonic-acid water, known to be lead-free, and approximately of the same hardness as the water to be examined; then add to each an equal bulk of the colouring-matter in quantity sufficient to distinctly tinge the water; the colours may now be compared; the slightest blue tint will be either due to lead or copper, for copper in very dilute solutions gives a similar tint, but in solutions of 1 to 1,000, or stronger, the hue is so different as to differentiate the two metals.

The method is, within certain limits, applicable for quantitative purposes on the usual calorimetric principles. As a qualitative test, it is superior to hydric sulphate, and more convenient.—*The Analyst.*

The Old Treatment of Lepers.—A leper was at this time looked upon as one legally and politically dead; he lost his right of citizenship, and could not inherit property. The Church not only regarded, but made him defunct by performing the solemn ceremonials of the burial service over him, on the day that he was consigned to the lazar-house. He was clothed in a pall, placed before the altar on tressels, and the mass for the dead celebrated over him, and then a shovelful of earth thrown upon him in imitation of the closure of his grave. After which time he was always obliged to wear the peculiar leper's garb, to carry a leper's stick, with which only could he touch any person or thing, never being allowed to shake hands, or touch with his hands any person, animal, or chattel, or to wash his hands, or apparel, or anything pertaining to him in any running stream, or public watering-place, or to speak to any non-leprous person, lest his pestilent breath, or the infectious odour exhaled from him should annoy or infect any healthy person. In the year A.D. 1313 the King of France burned all the leprous people, women as well as men, for he supposed they had poisoned the waters, which caused his leprosy.

Musk.—Although musk has been long well known in the West, yet, says Dr. Macgowan in his report on the health of Wenchow (Imperial Maritime Customs), it seems worth while to translate what Chinese writers have to say about it. The musk-deer is found throughout the mountains of Yünnan, Szechwan, and Thibet. It is a timid little animal, and often dies of fright. It feeds on juniper leaves and reptiles; snake-bones are found in its stomach. In spring its glandular pouch is greatly swollen and inflamed. The secretion is discharged with the urine. In such deposits musk of a superior quality is found, amounting sometimes to 15 catties (a catty is a Chinese weight of about $1\frac{1}{3}$ lb.). The article which is most prized is that which falls from the musk-deer on to the ground, and is gathered in grains that are as precious as pearls. These deposits are so pungent that, if carried through a garden or woods, it prevents fructification. The poisonous effect of fresh musk on vegetation is shown also by the blighted appearance of places which the musk-deer selects for its convenience. For some distance around these places there is an absence of plants, and further off the leaves exhibit a yellow tinge. This valuable substance no sooner leaves the hunter's hands than skilful manipulators adulterate the article for wholesale dealers, who further adulterate it for the trade, by which time it contains only about 10 per cent. of genuine musk. Musk is said to be a remedy for worms, and to cure the bites of venomous serpents.



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TESTIMONIAL.

From EDWARD C. ANDERSON, M.D., M.A., Cantab.,
Tom Law, Darlington, November 5th, 1880.

To Messrs. Krohne & Sesemann.

Gentlemen,—I have the greatest pleasure in acceding to your request that I should, from my experience of the Martin's Bandages, testify respecting their excellence.

My knowledge of the quality of Bandages of English make is limited; for, having, about fifteen months back, applied bandages sent to me from this source, and noting the evident irritation and discomfort produced by them—so great, indeed, that each patient soon discontinued their application—I ceased to recommend and use them.

In April of this year, I for the first time used the original Martin's Bandage, and since then I have applied them and none else to the limbs of nearly twenty persons suffering from a variety of complaints, such as ulcers of the leg of old standing, which had resisted all treatment for more than fifteen years; varicosities (the unsound leg of one patient, a man, measured 25 inches round the calf, against 16½ inches, the size of the sound leg; and his condition was such that, before coming under my care, it had been by his former attendant seriously debated whether or not the leg should be amputated to save life. This man goes about wearing a 21-foot Bandage, and the calf of the unsound leg now measures 18 inches); erysipelas, œdema, rachitis, &c.

Suffice it that all, both young and old, have been enabled to wear them with comfort; most of the cases under treatment have been cured, all benefited, and many although well, continue to wear them on account of their safety and the support they give rise to.

I may appear to have said too much in their favour. I can assure you that my feeling is that I have said too little. The great success attending their use evidently arises from the excellent purity, smoothness, impermeability, and non-irritating nature of the Indiarubber of which each Bandage is composed.—I am, &c.

EDWARD C. ANDERSON, M.D., M.A., Cantab.

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5. The moderate price at which they are sold, bringing them within the reach of everyone, will allow their destruction after use, by simply burning them, a fact which, from a sanitary and economical point of view, as washing is dispensed with, is of the utmost importance.

N.B.—The burning of the Diaper can be effected at any convenient time. The antiseptic properties of the material will prevent any smell whatsoever while being kept after use, until convenient to be burned. The latter process is also entirely unattended by any smell of any kind.

In addition to these advantages, we point out the great convenience and comfort these Diapers afford Ladies travelling, as the carrying about of soiled linen is entirely avoided, another important fact, which must be obvious to everyone.

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HEALTH

A Weekly Journal of Domestic and Sanitary Science.

EDITED BY DR. ANDREW WILSON, F.R.S.E.

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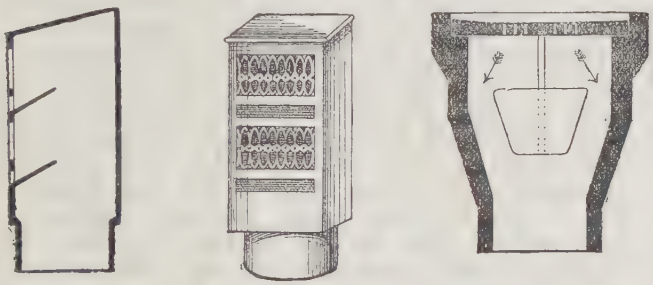
Lie in three words, HEALTH, PEACE, and COMPETENCE."—*Pope.*

THE INTERNATIONAL HEALTH EXHIBITION.

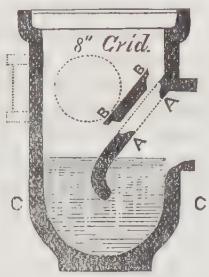
THIRTEENTH NOTICE.

GROUP III.—THE DWELLING HOUSE.

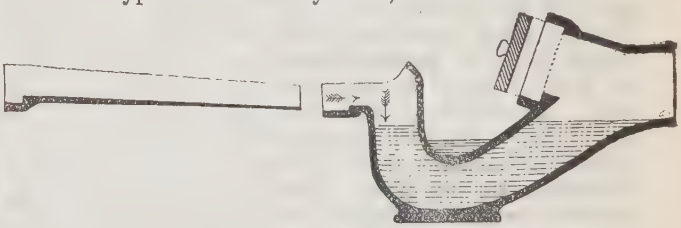
CLASS XXII.—(House Drains: their Construction and Ventilation; Sewer Disconnection; Sinks, Traps, Gullies; the Disposal and Utilisation of House-refuse) *continued*:—Messrs. Broad & Co., 2 and 4, South Wharf, Paddington (503), have an exhibit of sanitary specialties which deserve some attention. They have, in the first place, a sectional drawing of their system of ventilation. Sanitary authorities differ in opinion as to the possibility of an air inlet to a drain becoming, under certain conditions, an outlet for vitiated air. Messrs. Broad are of opinion that it may be so caused, either by the drain being charged with water and thus displacing air, which finds egress at what was intended as the air inlet, or by a defect in the up-cast shaft admitting cold air, and causing a reversal of current. They consider air-inlets indispensible to insure a perfect system of ventilation, and they lay down the following conditions, which an inlet should fulfil—it should be simple in design, having no working parts which can get out of order, and should always be fixed at some distance from doors and windows, so that should any reversal of current take place, no danger could be apprehended. In this system, therefore (as shown in the accompanying illustrated section), the



air inlet is carried to the roof, the outlet being fixed at a considerable height above the inlet. As, however, it not infrequently happens that from an architectural point of view the fixing of a pipe would be objectionable, the firm supply an air inlet which may be fixed flush with the ground, this inlet being provided with a cup which intercepts all solids; but in case the house should be one with an underground basement, having no space in which this can be fixed, another air inlet is made, which, by means of pipes and bends, can be carried up any convenient retaining wall. Messrs. Broad's system of ventilation includes also a ventilating shaft carried two or three feet above the highest point of the roof (both this and the inlet pipe being of the same diameter as the soil pipe). The waste from bath and sink is delivered over one of Messrs. Broad & Co.'s registered gully traps represented in this sketch. These traps have the very great advantages of being easily cleaned and simple in their construction. A A is the inspection



inlet, affording a ready access to the drain. B B is the cap for insertion into the socket; it is filled with fat compo, and forms an air-tight covering. The trap is made square to the points C C; thence it is easily curved, all angles being avoided, and insuring an easy flush. The water waste is delivered by means of inlets *under* the grid of the gulley trap, thus avoiding all splashing whilst retaining perfect disconnection. The rain-water pipe discharges over a small gulley made especially for the purpose. This system of drainage also provides a man-hole, not less than 2 ft. 6 in. by 18 in. clear, just outside the house, and immediately before the junction between the house drain and the sewer. A half channel pipe is fixed into the base of this chamber, discharging into Broad & Co.'s reducing channel syphon. This channel, as will be seen, tapers very considerably towards the syphon, by which means the water is delivered into the syphon at a heavy flush, and its cleanliness is



ensured. The syphon itself is fitted with an inspection branch, so that, should any stoppage occur on the sewage side of the trap, a ready means of access is provided. As an alternative to this trap, Messrs. Broad manufacture another variety, designed by Mr. Rogers Field. All sewer-gas is excluded from the upper or house-drain by this syphon, which is easily cleaned from the man-hole. Thorough ventilation, thorough flushing, and easy accessibility for frequent cleansing, are the distinguishing features of Messrs. Broad & Co's system of house-drainage.

This firm are the London agents, and occupy an adjoining stand (504) on behalf of the Bourtre-hill Coal Company, Dreghorn, Ayrshire, the makers of some very excellent enamelled ware in the form of sinks, baths, cisterns, mangers, milk-coolers, &c. These articles appear of a very excellent quality, their surface is smooth and highly finished, and the enamel is so strong that pieces of the ware broken by a hammer present, so far as the enamel is concerned, a clear, even edge.

Messrs. R. W. Croswaite & Co., of Stockton-on-Tees, and 183, Queen Victoria-street, E.C. (498), have also a large collection of sanitary appliances, amongst which prominence is given to the "Stockton" sheet sewer-grate, which is a

The ASSOCIATION FOR THE SUPPLY OF PURE VACCINE LYMPH, formed 1877, 3, Hemmings-row, St. Martin's-lane, London, W.C.; near Charing-cross Telegraph Office, 448, West Strand, W.C. Sole agents for Dr. WARLOMONT'S Calf Vaccine.—[ADVT.]

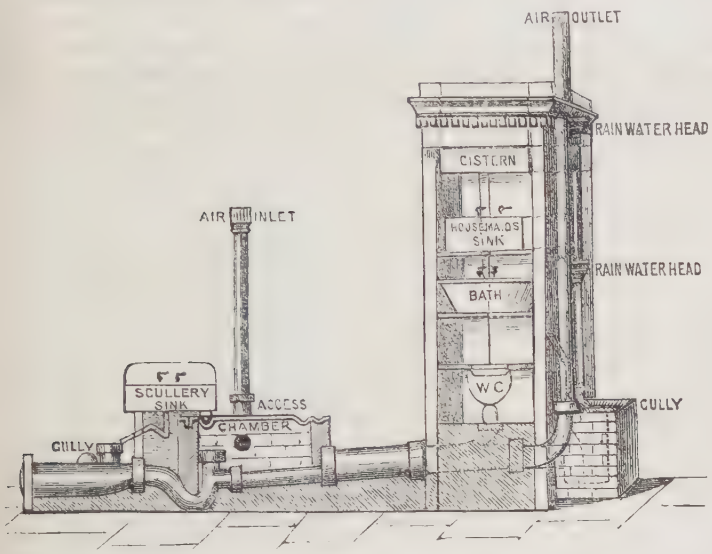
double trap and precipitate collector combined. The makers claim that this is the most effective sewer-grate and trap combined that has ever been made, and the price (25s.) is certainly moderate, It consists of a strong frame, with a syphon outlet. Into this is placed a box or pail, fitted with a handle, for the collection of solid matters entering from the streets. The top or sides of the box rise above the bottom of the gulley-trap, which is cast in one piece with the top grating. The firm are also makers of the "Liverpool" sink trap, which seems to possess many solid advantages over many articles of the kind we have seen in this Exhibition. The trap, in this case, is at the bottom of the apparatus and not in the cover. The largest possible water-way is given, the cover is hinged and cannot be lost or displaced, whilst the hinge is of copper and therefore not liable to rust. Some very serviceable bell-traps and "Union" sink pipes are also shown here. Messrs. Croswaite are the manufacturers of an improved school-desk, which adds to all the latest improvements one special advantage, that, although a folding-up desk, it is impossible for the scholars to get their fingers between the part folding up and that remaining fixed, as it has not a long hinge, but works on a centre. The construction of this desk also allows it to be transformed from a school-desk to a reading-desk with book-rest. At the same time the space between the desks and the seats allows of free ingress and egress.

Messrs. Candy & Co. (Limited), of the Great Western Potteries, Chudleigh; the Marland Terracotta Works, Torrington; Annery Potteries, Bideford; and 11, Queen Victoria-street, E.C., have a large collection of sanitary appliances at their stand (497), including glazed stoneware traps, grease-traps, and sewer ventilators; silt buckets for preventing the choking of drains, the patent double sewer gas excluder, specimens of new descriptions of sanitary bricks, paving bricks and tiles, &c. These damp-proof bricks, known as granite vitrified, or "Devonshire buffs," are likely to make a name for themselves all the world over. The clays from which they are made are found to such a large extent on the properties owned by the company in Devonshire, that the supply is apparently inexhaustible, and this places Messrs. Candy in a position, when the nearly imperishable nature of the goods is taken into account, to compete on most favourable terms with rival makers in any part of the kingdom. The clay is rich in silica, showing, by analysis, to contain as high as 87 per cent., so that the material can be safely fired until it becomes a non-absorbent and semi-vitreous body, with the advantage of retaining its colour and freshness. The bricks are made in an agreeable grey or warm buff colour; and, unlike most so-called non-porous bricks, which have merely a vitreous glaze or surface, these articles are absolutely damp-proof all through. In price, too, this ware will compare most favourably with any other kind of bricks in the market. The superiority of this material when used in the manufacture of sanitary appliances, such as drain-pipes, sewer-gas excluders, drain ventilators, &c., must be at once apparent. As a proof of the astonishing durability of materials made from these clays, which are yearly exported in their crude state in enormous quantities to different parts of the kingdom and abroad for the manufacture of stoneware bottles, art-pottery, telegraph insulators, chemical vessels, &c., &c., it may be stated that the most powerful acids and alkalies have no injurious effect upon them; and, in fact, articles made from this extraordinary clay are alike frost and fireproof, and may be said to be imperishable. Kirkaldy's tests have shown that Candy & Co.'s facing bricks resist a crushing pressure of over 440 tons per square foot, which is double that of ordinary building stone, and for these and their other advantageous features they have been selected for use by the Government. Another purpose to which their non-absorbent brick has been extensively applied is for the paving of stables, &c., their buff and grey colour materially assisting the reflection of light, thereby giving a cheerful appearance wherever laid down. The material, too, forms a good paving either grooved with an ornamental design or plain for footpaths, and has already been adopted by many towns as the cheapest and best material for pavements, forming a most agreeable contrast to the black paving-bricks hitherto used, which give such a funereal appearance and depressing effect, with the long black borders and footpaths putting the streets in mourning. It is also used for steps, wharves, and railway platforms, and although more durable than stone, is fully 70 per cent. cheaper. Besides the clay we have mentioned, Messrs. Candy's estates contain a very valuable body of fire-clay, which is made into the various articles for which that substance is used, and is supplied both to the English and foreign Governments, various gas companies, Portland cement works, &c., being particularly suited for intermittent heats and for resisting the destructive action of salt-glazing in pottery kilns and chemical works. The company have gained many prize medals for the excellence of their wares, and have numerous testimonials on the same point.

Amongst the many interesting exhibits in this class which we can only cursorily notice are those of Messrs. Henry Wadsworth & Son, Patent Wheel, Axle, and Wagon Works, Halifax (500), the makers of "Wadsworth" patent tipping wagons and carts for the removal and discharge of house and street refuse; and the "Wadsworth" balancing water-carts and four-wheeled water-vans. The former is provided with an iron tank and distributor. All the productions of this firm are fitted with their patent wheel. It is asserted that the advantages of these wheels are numerous and important, the principal being that they have a nave that will neither break or rot; double the degree of strength in the spokes at the part where there is the greatest strain; no drawing out or breaking of bushes; and at the same time they are more convenient for repairs. The patent wheels are now extensively used in many parts of the country. The North British Plumbing Co., 4, Upper Baker-street, N.W., exhibit (493) a system of cast-iron drainage for houses as introduced by them, including drain-pipes, disconnecting chamber, floor and trap, air-tight covers, terminals, bends, junctions, gullies, &c. It is asserted that the use of cast iron for these purposes has many advantages over any other material, especially in regard to the avoidance of the collection of dirt. Mr. Francis Newman, 55, Thomas-street, Ryde (486) sends a drawing of a syphon with a conical enlargement to form seating for a valve, the object being to retain the water in the drains of a house for the purpose of testing the joints, either after they have been laid or at other times. A valve is shown for use in connection with the apparatus, which may be also used for the purpose of flushing the drains. There is also shown a drawing of a connection for a house-drain for similar purposes, but without the syphon. Mr. J. Harnett Harrison, civil engineer, 21, Harrington-street, Liverpool, exhibits (481) a patent improved collar-joint for sewer and drain pipes, by which infallible joints, as to strength and tightness, are made between pipes of unlike materials, without altering the continuity of equal diameter. It is well known that joints between earthenware and lead pipes lead to the gravest sanitary defects, and Mr. Harrison claims by this patent to have removed the source of danger. Mr. John Hewes, 4, East-street, London-road, Leicester (480), comes

forward with another plan for disposing of sewage refuse, and exhibits a model of a proposed patent retort for making gas from deposits of that nature. He also shows a number of drawings illustrative of a system for the prevention of sewer pollution by precipitation and deodorisation.

Mr. H. King, sanitary plumber, Clarence-place, High-street, Kensington, exhibits (496) a model of house drains fitted on the system adopted by him, of which we append an illustration. This diagram shows that Mr. King's



experience of over fifteen years in the sanitary fitting of dwelling-houses has not been in vain. It will be observed that his system provides a man-hole, with an air-tight cover for cleaning the drains; a trap for keeping back the sewer-gas out of the house; pullies for disconnecting the sinks, bath, &c., from the house-drains, and ventilation for the soil-pipe. With such sanitary arrangements as are here shown, and with the most ordinary care on the part of the occupants in regard to the periodic cleansing of the drain-pipes, a house should be as free from sewer-gas poisons as it is possible to make it. Mr. King also shows another model of what a house should *not* be in these respects.

Messrs. Henry Bailey & Co., of the Fulham Potteries, have at their stand (469) a good display of sanitary stone-ware and pottery, including the "Desideratum" stable, gulley and grease-trap, which is well worthy of attention, being compact and simple in arrangement, easily get-at-able, affording ready means for intercepting matters that should not be allowed to pass into the drain, and facilitating the ventilation and disconnection of the drains. Banner's patent drain-trap is shown at this stand, together with Roberts's patent water-tight joints for drains, which are no doubt capable of producing very good results. The joint is constructed on the principle of the wedge. The collar, which is lined with an amalgam, is passed over the abutting ends of the two pipes required to be connected, these ends being also loaded with amalgam, and having their surface moulded in a reverse direction to that of the interior of the collar. The pipes are, of course, made of uniform diameter inside and out from end to end, the sockets being omitted. Another comprehensive collection of a similar nature is that of Messrs. James Stiff & Sons, of the London Pottery, Lambeth (476). Their exhibits include the "Interceptor" sewer-gas-excluding trap, Weatherley's "Disconnector" waste-water trap, Dr. Soper's drain disinfector—very useful for hospitals and institutions, and even for private houses A rain-water pipe-inspection trap, housemaids' and hospital sinks, and other items for kindred purposes, will be found on this stand.

Messrs. George Waller & Co., Holland-street, Southwark (492), have a number of the domestic and sanitary appliances, for the manufacture of which they are well known. Among them is their patent side entrance or manhole cover, which has been devised to meet the requirements for a cover that can either be used open as a ventilator, or closed, and also to obviate the danger of those at present in use which require the door to be standing up when left open whilst men are working below or for ventilation, and in either case, especially in a town, necessitating the attendance of a watchman to prevent accidents arising through passengers not noticing the obstruction. It is claimed for this patent cover that it has the following advantages, viz.:—It is a combined ventilator and closed door; the door is much lighter to lift—a great advantage when men are working below and require to open it from underneath; the door has a much better support in front and at the sides of the frame; and it can, if required, be fitted so as to be absolutely air-tight. The firm also show some excellent drain and gulley-cleaning tools. Their chief feature is that the rods are made with a spring bayonet-joint, which is very strong, offers the least obstruction, and, whilst allowing the tools to be turned either way, makes it absolutely impossible for the rods to come undone—a very frequent failing with the ordinary screw-joints. Another speciality of this firm are tide flaps or valves designed for and largely used in sewers having little fall. They are provided with a copper float, which enables the valve to open freely with a very small flow. Messrs. Waller exhibit, also, a flushing valve of a new pattern. This valve was designed for a foreign town, and since then they have had a very favourable reception in this country. They are very useful in a length of pipe-sewer, and take the place of a sluice-valve where a quick discharge is required. Pushing the rod down shuts the valve and secures it water-tight. The door is moved from its face by raising the rod, and cannot stick.

Flushing penstocks are now made by this firm with some further improvements. These open quickly, and are held open by a turn of the spindle, and when closed one turn of the spindle in an opposite direction effectually closes the door. Messrs. Waller's cast-iron doors and frames for street sewers are well worth the attention of sanitary officials in large towns, and their street orderly bins (the familiar bins in the London streets being all made by this firm) are now manufactured in a variety of forms, either sunk in the ground (as is the case at Birmingham) or upright with a side opening. Messrs. Waller's iron dust-bins for offices, &c., are a great improvement on the old wood and brick patterns, and a large number are now in use in the City of London.

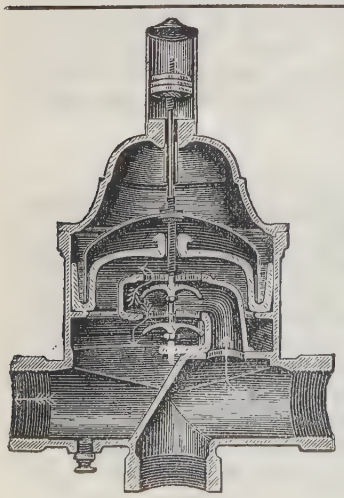
In regard to the exhibit of Messrs. Le Grand & Sutcliffe, 100, Bunhill-row, E.C. (458), noticed by us in a recent supplement, we omitted to mention their latest patented form of driving the tubes for their widely-known Abyssinian wells. Their "patent driver," as it is called, is an improvement upon the old styles in that it delivers a more direct blow, and ensures the effectual forcing of the tube into the earth. We are informed that Messrs. Le Grand & Sutcliffe have just completed an artesian bored tube well for the supply of the town of Hertford, and have been fortunate enough to obtain there a supply from a single tube well of upwards of one hundred gallons a minute. The supply

will be a particularly economical one for the town, as the motive power for the pump-drawing for this "Abyssinian" tube well will be obtained from a water-wheel erected at an adjoining stream. The firm have also very ingeniously applied this principle of driving to the erection of lawn-tennis, cricket-nets, flag-poles, boundary-stakes, &c., which may now be firmly and satisfactorily fixed in an incredibly short space of time.

Recovery from Cobra-bite.—It is not often that a person who has been bitten by a cobra lives to tell the tale. An Allahabad paper, however, gives such an instance. Very recently, it appears, while staying at Kangra, an officer of the 1st Ghoorkas was bitten by a cobra in the hand. With great fortitude, Mr. R. seized his gun and blew off the finger which had been bitten. Nevertheless, when medical assistance arrived, he was almost insensible, and it was only by keeping him walking about all night, and administering large doses of brandy and ammonia, that he was pulled through. Mr. R. has now been sent back to Dharmsala, where it is to be hoped he will speedily recover both from the effects of the poison and from the very severe remedy.

Food, Wine, and Drugs in Paris Hospitals.—The amount of food, wine, and drugs distributed in the Paris hospitals is the subject of a good deal of discussion both within and without the medical ranks. In February the Director of the Assistance Publique addressed a circular to the physicians, surgeons, and apothecaries attached to the hospitals, in which he drew their attention to the excessive consumption of meat, wine, and drugs in the Paris hospitals. In 1855 1,256 litres of alcohol were distributed among the different hospitals; in 1870, 41,699; in 1882, 77,755. In 1855 200 litres of rum were sufficient; in 1880, 20,287; in 1882, 32,298. The quantity of Bordeaux consumed has increased from 13,000 to 103,000 litres. An equally great increase has occurred in the consumption of sugar, coffee, and milk. In the last report sent in by the Administration to the Conseil de Surveillance there is entered for one bed at the Tenon Hospital every day during January, 1883, as an extra, 1 kilo. 500 grammes of raw meat, 2 litres of milk, two eggs, one cutlet, and two litres of broth. In the same ward, another patient is credited with having consumed three kilos of raw meat, two litres of milk, two eggs, and a cutlet, daily. There are also instances of patients reported to have swallowed 3 kilos. of raw meat daily from the 1st to the 16th of June; and daily, during July, 1 litre of Baujuls, 6 litres of broth, 10 eggs, &c.

The "Æolus Waterspray" Ventilators.—The architect of St. Peter's Church, Limehouse, is Mr. Ewan Christian, 8A, Whitehall-place. The foundations rest on a bed of concrete 8 feet deep, the cost of establishing a secure foundation exceeding £3,000. The ventilating arrangements, so far as regards the extraction of the vitiated air, are simple enough, namely, three openings in the wood ceiling, protected with wood flaps, which can be raised or lowered at pleasure. These openings communicate with lowered openings in the gables. The warming and admission of fresh air—cold in summer and warm in winter—has been carried out by the Æolus Waterspray and General Ventilating Company. The arrangement is similar to that successfully applied to the Church of St. John the Evangelist, in Wilton-road. Two Æolus Waterspray Ventilators, of the horseshoe pattern, furnished with heating stoves, are fixed in the vestibule. The stoves are coated with silicate cotton composition, and the whole apparatus is enclosed in ornamental wooden casing. The heating is effected by gas which burns around a number of tubes in each stove, heating them to an intense degree, and through these the air, after being washed and purified, is passed into the church. The gas fumes are carried off by a distinct flue. All that is seen inside the building are two circular openings, 16 in. in diameter, and 8 ft. above the level of the floor; each instrument delivers 130,000 cubic feet per hour of purified fresh air, heated to a temperature of 140°; or 80,000 cubic feet of cold fresh air, at a temperature of 17° below the external temperature in the shade in summer time. The consumption of water in each instrument is 80 gallons per hour, and of gas 40 ft. per hour. It is calculated that by means of these instruments the temperature of the church can be raised to 60° in less than two hours. The whole apparatus is perfectly under control, and can be stopped or set going at a moment's notice. We understand that the cost of applying this system is much below the ordinary charges for heating apparatus, and the working expenses nominal. The vestibule is to be used as a Sunday school-room, and to be partitioned off into class-rooms by curtains. The radiated heat from the stoves will suffice to warm this portion of the church. At the eastern end of the south side aisle, in the organ chamber, the Æolus Company have fixed one of their very elegant ventilating gas stoves. These are in principle the same as those attached to the waterspray ventilators, but are minus the waterspray. The stove is connected at the base with the outer air by an opening through the wall. This can be used as an ordinary air inlet, cold in summer and warm in winter. Another of these stoves warms and supplies fresh air to the Vestry.



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Sanitary Institute of Great Britain, Glasgow, 1883. Star Certificate. This Certificate is the Highest Award, and only obtainable by those who already hold the Medal of the Institute.
National Health Society's Exhibition, London, 1883. Silver Medal.
International Food Exhibition, London, 1881, Silver Medal. 1882, ditto.

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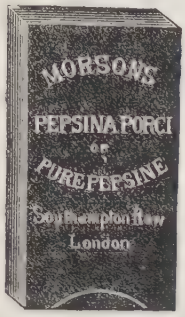
SUPPLEMENT.

Containing full and descriptive Reports of the International Health Exhibition.

No. 14.] FRIDAY, AUGUST 8, 1884. [*Gratis with* "HEALTH."



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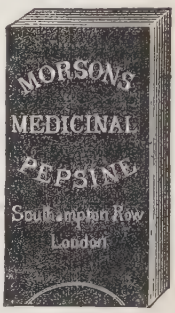

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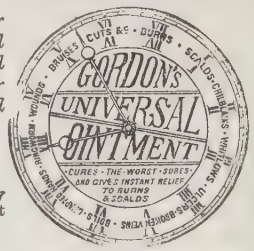

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EDITED BY DR. ANDREW WILSON, F.R.S.E.

"Reason's whole pleasure—all the joys of sense—
Lie in three words, HEALTH, PEACE, and COMPETENCE."—*Pope.*

THE INTERNATIONAL HEALTH EXHIBITION.

FOURTEENTH NOTICE.

GROUP III.—THE DWELLING HOUSE.

Class XXIII. (Water and Earth Closets, Commodes, Urinals, Disinfecting Powders and Fluids, Insect Destroyers).—This, too, is a somewhat miscellaneous class, and many of the exhibits, although very important in themselves, possess an interest rather for the specialist than the general public. It is to be hoped, however, that the Exhibition will in these, as in many other matters treated of in these pages, open people's eyes on subjects which have hitherto been deemed to be the exclusive province of sanitary engineers, but which are really of the first consideration to all classes. The first stand (506) is that of Messrs. Bowes, Scott, & Read, Broadway Chambers, Westminster, the manufacturers of a self-cleansing trough-closet, for schools, barracks, workhouses, and asylums. This apparatus is supplied to the London Board schools, and has the high approval of no less an authority than Sir Robert Rawlinson, K.C.B., chief engineering inspector to the Local Government Board, who writes :—"I have now had an opportunity of testing the value and advantages of your self-cleansing trough-closet, and have pleasure in stating that it is on better principles than any I have yet seen, owing to the fact that it is automatic and self-cleansing, therefore it requires no attendant to empty it, whose neglect is generally the cause of offence and failure in others. I can safely recommend School Boards, factories, workshops, and local authorities to use them for any large institutions where a number of persons require to be accommodated at the same time, and I may congratulate you on having brought out something that will, I hope, prove a boon to the public." The object of the invention is to provide a simple and automatic method of preventing offence and clearing out excreta at stated periods. Under a number of seats arranged in a line a trough for receiving the excreta is fixed, having at one of its ends a weir which keeps the water at a constant level of about four inches. This trough is made in stoneware or iron, the latter being made in open segments, bolted together in lengths according to the number of seats required for use. The flushing cistern is on a familiar and effective syphon principle. When the water fed from the inlet tap rises to the top of the longer limb of the syphon, it is guided by a lip into and caused to descend through the inner pipe. By this means a quantity of air is displaced, gradually forming a partial vacuum in the discharging limb, being sufficient to start the syphon, which empties the tank with considerable rapidity into the trough to be flushed. The same principle is applied to the flushing of urinals. The special advantages which Messrs. Bower, Scott, & Read claim are that when once their patent trough is fixed and put in working order no further supervision is requisite; they also claim economy in prime cost, and great saving in water. By means of a small constant dribble from a tap, which can be regulated to fill the cistern at stated periods as desired, the trough is effectively flushed out whenever the cistern becomes full.

Messrs. Henry Jones, Sharp, & Co., Bourne Valley Works, Poole, for whom Messrs. Bower, Scott, & Read are the agents at this Exhibition, show in the next stand (507) drain-pipes and other sanitary appliances made from rock concrete—a substance derived from the crushed rock found in the Bourne Valley. Its alleged superiority over tile or brick for these purposes lies in the fact that there is no fear of its bursting or permitting a leakage; that each length (it is made in about 3 ft. pieces for large sewers) is hermetically joined by ordinary cement; that it is cheaper in its prime cost than tile or brick joints, and that it is practically indestructible by wear.

The Hygienic and Sanitary Engineering Company (Limited), 23 and 24, Charing-cross, exhibit (508) sanitary appliances, invented by Mr. D. T. Bostel, the manager of the Company. Chief among them is Bostel's Brighton Excelsior Water Closet and Automatic Cistern—one of the most simple and effective appliances of the sort in the Exhibition. Each closet in a house fitted on this principle has its own cistern filled from a large cistern at the top of the building. After the closet has been used the handle merely requires to be held for one or two seconds when a flush or two or more gallons of water is quietly given, thoroughly cleansing the closet and trap, and carrying every particle of solid matter into the sewer. The closet then remains trapped with a 1½-in. water seal, rendering it impossible for any air from the sewers to enter the house. The pan is made in one piece of glazed earthenware, and is entirely free from metal fittings or joints; it can be easily fixed, and, finally, if the soil-pipe or drain is choked, it can be cleared by the clearing-shaft of the closet, which, with the ordinary plumbers' "plunger," will serve all the purposes of a force-pump. As to the general system of house sanitation, the inventor recommends that the soil-pipe should always be outside the house, and a ventilating-pipe carried above or through the roof, with Dr. Hall's patent ventilator fixed on top. In all cases a fresh-air inlet should also be at the base of the soil-pipe, or the house side of dip-trap, between house and sewer. Another closet has been designed by Mr. Bostel, not to supersede the one we have been describing, but to meet the wishes of some of his customers. It is called the "No. 3 Excelsior," and its specialities are that it contains a larger quantity of water in the basin or receiver, that the outlet is in front and out of sight, that the flush of water is delivered at the bottom of the basin, and not, as usual, on the top, whilst a small supply of water comes from the rim to clean the sides of the closet, that the outer shaft to the closet is in front, and can be readily got at in case of accident, and that ventilating arms can be fixed in the side of the trap if needed. Amongst the many excellent specimens of brass and plumber's work at

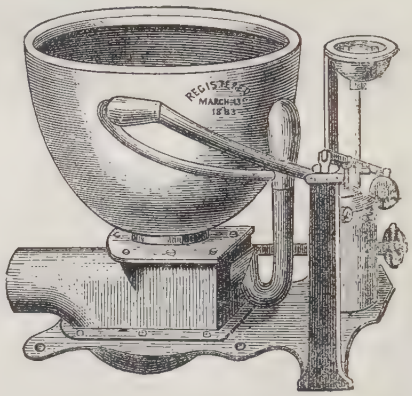
The ASSOCIATION FOR THE SUPPLY OF PURE VACCINE LYMPH, formed 1877, 3, Hemmings-row, St. Martin's-lane, London, W.C.; near Charing-cross Telegraph Office, 448, West Strand, W.C. Sole agents for Dr. WARLOMONT'S Calf Vaccine.—[ADVT.]

this stand, a speciality is Bostel's patent safety ferrule, applicable to any kind of bib, ball, or stop-cock. This ferrule is acknowledged by all who have seen and tried it to be one of the most simple and useful inventions of the day, its special advantages being that it enables the plumber, or any other person, to repair a leaky tap in any part of the house without turning off the water from the whole house. Should a new cock be required, the householder can simply turn off this ferrule, take out the old tap and refix a new one, without any inconvenience whatever. A ball-tap suddenly commencing to leak could be immediately shut off, preventing overflow of cistern, and, perhaps, serious damage to ceilings, walls, &c. Plumbers will readily see its great utility when fixed to a ball valve, as the pressure can be regulated to a nicety.

Messrs. R. Anderson & Co., of Liverpool, are the exhibitors of a patent tip-up cistern, the invention of Mr. J. B. McCallum, of the Municipal Offices, Blackburn (512). These cisterns contain a tank fixed on a pivot, and when a cord or a pulley is drawn the tank, if it is full, is sharply overturned and the fluid passes into the closet-seat. The advantages claimed for this patent are that it is simple and sure in its action, requires no ball-cock, inlet-valves, or syphon, prevents waste, gives a perfect flush, is suitable for any pressure, has few and simple working-parts, and is reasonable in price. On the latter ground, at any rate, the patent tip-up cistern will compare favourably with other cisterns in the market.

Mr. J. Gregory, Clapham Junction Works, S.W., shows (513) another description of patent flushing water-closet, which consists of two distinct separable parts—viz., the flushing-cistern apparatus and the basin with special spreader. The former can be used with an ordinary flushing basin or wash-out closet; the latter can be used with a syphon or other apparatus having a $1\frac{1}{4}$ in. discharge-pipe. The flushing-cistern consists in a tip-up tank, which is overturned by the pulling of a cord, and which delivers a two-gallon discharge into the basin, with a fall of about five feet in five seconds of time. This cistern is without valves, except a ball-valve connected with the supply-pipe. The emptying and scouring of the basin are effected by reducing the friction of the water in its descent, and accumulating its force at the exit for these two operations at the same time. The inventor claims that his apparatus is free from the objection, justly made by sanitarians, to that large class of indirect flusher which is known as the "wash-out," and which has a trap beneath, at the back, front, or side, as the case may be, almost out of sight; in which trap the deposit is too frequently retained (with or without detection), and between which and the basin is a surface of pipe which gets splashed and corroded with use, and is constantly evaporating into the apartment. In later makes of this closet, which, we ought to say, is called "the Shrewsbury tipper-flushing water-closet," a special long bend has been provided for the purpose of connecting the basin with an outside soil pipe. This bend passes directly through the wall, without cutting into the floor of the closet, and without any further junction. The bend may be carried through the wall in any direction. It is proposed in the future to make the tipping cisterns of the new galvanised Swedish iron, the tenacity of which is so great that it may be manipulated to any extent, after its special mode of preparation. This process of galvanisation protects the iron from decay, to which ordinary galvanised iron and zinc cisterns are liable. The instructions as to the fixing of these closets contains one clause which may be reproduced here as being applicable to every kind of such appliance that ever was made, viz., that the seat and the whole of the woodwork covering and surrounding the basin should be painted and varnished, or stained inside as well as out, so as to prevent the absorption of bad air by the wood.

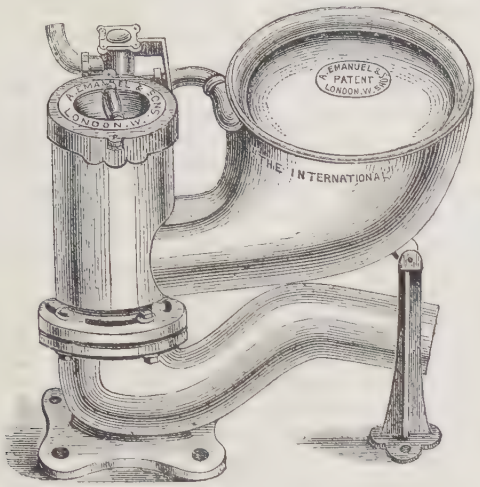
Messrs. A. Emanuel & Sons, 53-57, Marylebone-lane, W., show some very excellent closets and cisterns manufactured by them. For instance, there is the Phœnix Valve-Closet and the Phœnix Niagara Basin, of which we give illustrations, which have numerous advantages over many of the appliances of the kind now before the public.



The closet itself has this recommendation, that it can be made to discharge soil in three different directions: either at the back, or at the outlet on the left-hand side, or at any angle between those two points as may be found to be most convenient. Great care has been taken to lock the trap, so that it is almost impossible for the water to be syphoned out under any circumstances. The ordinary basin supplied with the Phœnix closet is made with a weeping or flushing channel leading from the earthenware supply-arm into bottom of overflow arm, which makes it impossible for the closet to be used without at the same time re-charging the small trap with fresh water, and dispenses with the old system of having a lead weeping-pipe from the lead supply-arm into the lead trap fixed in the valve closet box, which may at any time get bruised, flattened, or otherwise damaged and rendered useless for the purpose for which it is intended. Another advantage possessed by this basin is that it can be used to replace an old one of an existing closet, and can be used for every description of other closets now being made, where the overflow arm is on the same side as the handle. The lead trap can be fitted with a cap and screw with ventilating union combined, so that should it at any time become stopped, the obstruction can be removed without interfering with the closet. The

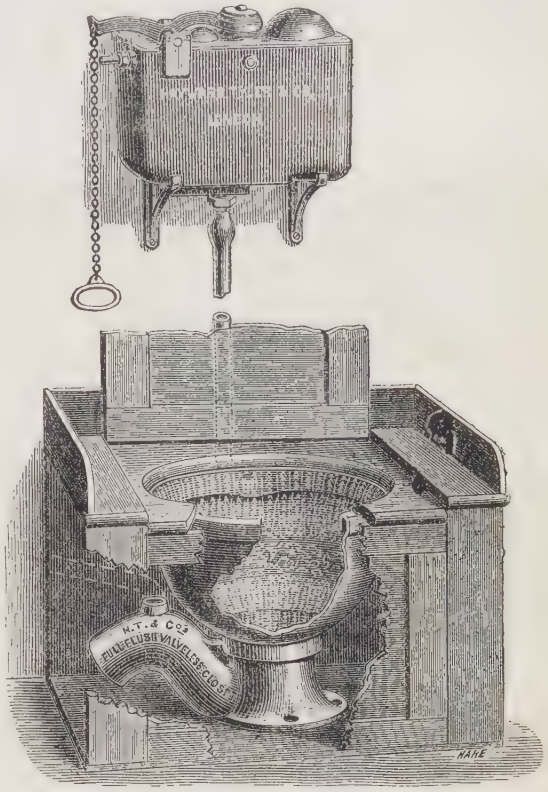
Phœnix Niagara Basin, as will be seen by the above section, is even preferable as a pan for domestic closets, inasmuch as the flushing arrangements run counter to one another, and, with two streams of water meeting and overlapping each other, every part of the basin must necessarily become flushed. Another very good

closet manufactured by this firm is the "International," an earthenware valve closet, which also we illustrate. The basin has a flushing rim, and the water,



after passing the round of the rim, meeting again at the outlet, secures a thorough cleansing. The apparatus is fitted with Messrs. Emanuel's new regulating supply valve, and the trap of the plunger is self-cleansing, the plunger itself being so constructed that the rubber seating can be easily moved for repairs. The flanges of the trap and closet are fastened together with a solid rubber ring and three nuts and bolts, so that leakage is next to impossible with anything like fair wear. By simply removing these latter, the trap is so constructed that the outlet can be put at any angle required. The other exhibits of Messrs. Emanuel include an effective automatic syphon flushing cistern and water-waste preventor, and some specimens of extremely good plumbers' work.

In the next stand (510) Messrs. Hayward, Tyler, & Co., 84 and 85, Whitecross-street, E.C., have an exhibit of a somewhat similar character, which is well worth noting, This firm make a *spécialité* of water-waste preventing cisterns for closets, and their "Howard's" patent appears to meet all the objections which have hitherto been urged against single-box moderate-priced cisterns—objections which consist in the fact that their construction generally involves either the danger of a constant flow of water or an arrangement by which the lever of the ball-valve is held up as long as the lower valve is open. This latter defect, of course, leads to one of two things: either the ball-lever is permanently bent, or the working parts of the valve are so compressed that it fails to shut off the water properly. In the cistern now under notice there is a valve placed in the water-way before the water reaches the ball-valve itself. This valve closes with the action of the water, and requires to be held open for any water to reach the latter. When the cistern is at rest an arm from the cast-iron lever of the cistern presses against the valve and holds it open so that the cistern may fill in the usual way; but, as soon as the lever is raised, and before the bottom valve begins to open, the pressure is removed from the admission valve, so that it closes and prevents the possibility of any water passing the ball-valve although it remains open. This apparatus, which, by the way, has passed the strongest water-companies' tests, is made both as a syphon cistern for wash-out closets, hoppers, &c., and as a cistern with after-flush for valve closets, and all others which require to be delivered into the pan after the flush has passed. The annexed sketch shows Messrs. Hayward, Taylor, & Co.'s full-flush valveless closet, which obtained the first-class award at the International Medical and Sanitary Exhibition in 1881, and which for effectiveness of appearance, cleanliness, and moderation in price, will compare most favourably with anything else in the Exhibition. It has a full and complete flush, and may be thoroughly ventilated from the bend at the floor at a



trifling cost. Ventilation of each closet, we may add, is always desirable, whatever appliances are used, where more than one closet is on the same soil-pipe. At this stand, as at many others in the building, are some very pretty specimens of sanitary fittings, and there is another display of H., T., & Co.'s plumbing-work in the collection of approved fittings shown by the New River Company. The subject of domestic water-supply, especially in regard to country houses, is also treated by this firm, who show here a collection of plank pumps and deep-well pumps. The importance of a good supply of pure water for domestic purposes cannot be overrated; and as in most cases country houses are built upon elevated ground, it is necessary that the water be forced to them by mechanical means of some description. The system of pumping by means of horse-gear is tedious and expensive—a horse must be kept especially for the purpose, the circular motion spoiling a good animal for other work; wind power is uncertain; water power seldom can be obtained; manual power is in general insufficient. To supply a simple, cheap, safe, and efficient motor that can be placed under the charge of any ordinary gardener, Messrs. Hayward, Tyler, & Co., about four years ago, introduced into this country the "Rider" Hot-Air Engine which has proved a perfect success, some 300 having already been made in this country. Where the water is within twenty-eight feet of the surface, the pump is attached to the engine; where it is within about forty or fifty feet below, the pump is placed in the pipes; and where it is at a greater depth, say one or two hundred feet from the surface, the engine is made to drive an ordinary set of deep well pumps. These pumping-engines have earned for the

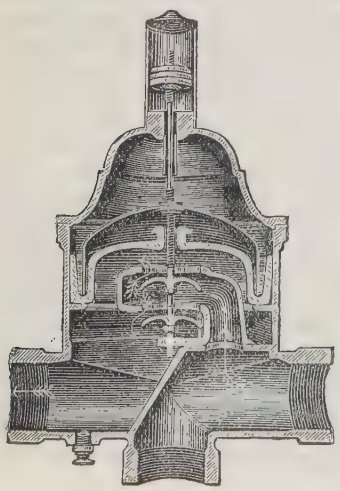
firm several high distinctions at Calcutta, Copenhagen, Birmingham, and other places.

Mr. James Robertshaw, 3 and 5, Simpson-street, Angel-street, Rochdale-road, Manchester (517), has a somewhat miscellaneous collection of articles, which are, however, worth inspection. The Improved Disinfecting Tripod shown at this stand is designed for use where infectious diseases have existed, for disinfecting rooms and dwellings by the acid of sulphurous acid gas, without disturbing or removing the furniture, &c. The instrument consists of three wooden rods in the form of a tripod, the feet resting on the ground; to the other end is fixed brass joints, in which runs a slide to extend the instrument to any height within 11 ft., and to the top portion of the slide, which is also made of brass, there is a holder for the pan with three arms. To one of the arms is a catch with a spring, and on the bottom of the pan (which contains the sulphurous acid) is a rim or flange, and by placing the pan on the holder, it is locked, so that it cannot become displaced. The slide is fastened to any required height by a wheel nut. When the instrument is to be used it should be placed in the centre of the room or place that requires disinfecting; then the sulphurous acid is put in the pan, and lighted, the pan is placed on the holder, and the slide is extended as near the ceiling of the room as is possible with safety. The room should then be closed for a reasonable time. Sulphurous-acid gas, it may be noted, descends to the ground instead of rising to the ceiling. The simplicity and freedom from danger of this invention are its chief claims to the public appreciation. Mr. Robertshaw shows some steam, water, and gas valves manufactured by him, which appear much superior to most of the valves made for manufacturing purposes, and have this great advantage, that they can be readily got out for examination and repair. A very simple, durable, cheap description of window-blind furniture is also shown at this stand.

Proust's French Black Ink.—Proust devoted himself to very interesting researches on the subject of inks, through which we get the benefit of the following recipe:—Crushed gall-nuts, one hundred and twenty-five grammes; sulphate of iron calcined, seventy-five grammes; powdered gum arabic, thirty-five grammes; water, two pints. Infuse the gall-nuts for several days in cold, soft, or distilled water, after which add the sulphate of iron and gum. Keep this ink in a glazed jar, and filter off as required for use.

The Social Science Congress.—Amongst the special questions which have been arranged for discussion at the next Social Science Congress, which is to be held at Birmingham in September, are the following:—Department of Jurisprudence and the Amendment of the Law: What reforms are desirable in the law relating to the arrest and continued detention of alleged lunatics, and to the control of their property? Department of Health: 1. What is the best method of dealing with (*a*) town sewage, (*b*) the products of house and street scavenging, and (*c*) the products of combustion? 2. What are the best means, legislative or other, of securing those improvements in the dwellings of the poor which are essential to the welfare of the community? 3. How far may the average death-rate of a population be considered an efficient test of its sanitary condition? and by what means can the high death-rate of children be reduced?

Pine Extract for Bathing.—It has long been recognised that the atmosphere of pine forests has an invigorating and beneficial effect upon people with weak constitutions and suffering from pulmonary disorders. At some of the watering-places of Germany the very simple prescription of the physician is that the patient should spend several hours a day walking or riding through the pine wood. This simple treatment is sometimes supplemented by the taking of pine baths, and in the case of kidney diseases and for delicate children this is claimed to be highly beneficial. The bath is prepared by simply pouring into the water about half a tumblerful of an extract made from the fresh needles of the pine. This extract is dark in colour and closely resembles molasses in consistency, and when poured into the bath gives the water a muddy appearance with a slight foam on the surface. The repugnance one feels to enter into such a muddy-looking fluid is dispelled as soon as the delightful aroma which arises from the bath is inhaled. Although there may be some doubt whether pine baths act upon the system in any other wise than as a tonic, still, as an adjunct to the daily bath, infusion of the pine extract induces a most agreeable sensation. It gives the skin a deliciously soft and silky feeling, and the effect upon the nerves is quieting. It is a matter of some surprise to us that the business of manufacturing and bottling the extract for private use and public bathing establishments has not been tried in this country, where pine forests abound so extensively. The extract, when properly bottled and securely corked, will not deteriorate for a long time, and the cost for gathering the pine needles and extracting their tarry substance would not be very great, while the demand for it would likely increase to large proportions when the public became accustomed to its use.—*Scientific American.*



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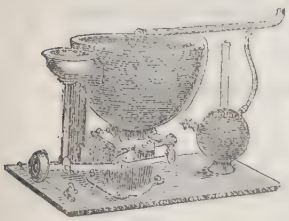

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Suffice it that all, both young and old, have been enabled to wear them with comfort; most of the cases under treatment have been cured, all benefited, and many although well, continue to wear them on account of their safety and the support they give rise to.

I may appear to have said too much in their favour. I can assure you that my feeling is that I have said too little. The great success attending their use evidently arises from the excellent purity, smoothness, impermeability, and non-irritating nature of the Indiarubber of which each Bandage is composed.—I am, &c.

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HYGIENIC WOOL DIAPERS.

Trade Mark.

A great boon for HEALTH, COMFORT, CONVENIENCE, & CLEANLINESS. If once adopted, they will be found to be the CHEAPEST, CLEANEST and BEST DIAPERS.

Unequalled and Unrivalled for General Use and Accouchement.

IN the construction of these Diapers we have acted upon the suggestions of an eminent London Obstetric Physician, who, after repeated trials of them among his patients, now pronounces **HARTMANN'S HYGIENIC WOOD WOOL DIAPERS** perfect in material and form, and the most convenient, comfortable, and healthful appliance ever provided for this special purpose.

The essential requirements in Diapers are the rapid and thorough absorption of all secretions, and the prevention of odours resulting from decomposition. **Nothing hitherto produced answers these requirements so perfectly as HARTMANN'S HYGIENIC WOOD WOOL DIAPERS.**

The following are a few of the many advantages which the material employed in the manufacture of **HARTMANN'S HYGIENIC WOOD WOOL DIAPERS** possesses over any other known substance, and especially over common absorbent cotton wool.

1. Hartmann's Patented Wood Wool has an enormous capacity of absorption, so that as a rule the use of one of **HARTMANN'S HYGIENIC WOOD WOOL DIAPERS** will be found equal for all practical purposes to many of the ordinary or any other kind.

2. All disagreeable odours, and the decomposition of the secretions, are entirely and effectually prevented, owing to the antiseptic properties of the material.

3. The Diaper is very light, and will always remain flexible and soft, an important advantage over the ordinary Diaper, which is necessarily heavy, hot, and liable to chafe the skin during its use, all of which disadvantages are entirely avoided in using **HARTMANN'S HYGIENIC WOOD WOOL DIAPERS.**

4. As the watery secretions can freely evaporate, the Diaper will always feel dry and remain soft. This is due to the nature of the material employed, and adds greatly to the comfort of the wearer. The Diaper also being constantly cool, offers a striking feature which no other Diaper, or anything of the kind, possesses.

5. The moderate price at which they are sold, bringing them within the reach of everyone, will allow their destruction after use, by simply burning them, a fact which, from a sanitary and economical point of view, as washing is dispensed with, is of the utmost importance.

N.B.—The burning of the Diaper can be effected at any convenient time. The antiseptic properties of the material will prevent any smell whatsoever while being kept after use, until convenient to be burned. The latter process is also entirely unattended by any smell of any kind.

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WHO SUPPLY THE WHOLESALE TRADE.

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Sample packages by parcels post, with pamphlets, for 2s. 3d., or five packages for 10s., direct from the sole Consignees, **Messrs. ESSINGER & NEUBURGER, 11, Hatton Garden, London, E.C.**

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SUPPLEMENT.

Containing full and descriptive Reports of the International Health Exhibition.

No. 15.] FRIDAY, AUGUST 15, 1884. [*Gratis with* "HEALTH."

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Of all Hosiers and Outfitters throughout the World.

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THE POPULAR MACHINE FOR 1884.

Specially constructed for gentlemen requiring a light machine with vertical or Bicycle position. Very easy, comfortable, safe, and the best hill-climber yet made. Fitted with Starley's Patent Automatic Double-driving Gear, Ball Bearings to all Wheels, Adjustable Handles and Seat, safe and effective Band Brake, Plated Parts, &c. "THE ROVER" also makes an excellent Convertible Carrying Tricycle.

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A fine Tonic and Digestive.

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A MACHINE to supersede the Pen for Manuscript Writing, Correspondence, &c., having twice the speed of the Pen; is always ready for use, simple in construction, not liable to get out of order, easily understood, and any one who can spell can write with it. "PORTABLE."

"I have worked the machine for eight consecutive hours without more than 10 minutes' interruption, and at the end of that time my hands were not conscious of the least fatigue."—R. BRUDENELL CARTER, F.R.C.S., &c.

It is used in Government Offices, by Merchants, Bankers, Lawyers, Clergymen, Doctors, Scientists, &c.

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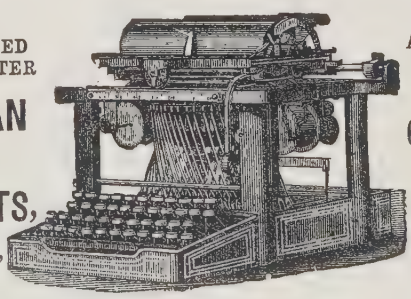

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NO SULPHURIC ACID OR MEDICINAL SUBSTANCE.
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AND TO BE OBTAINED OF ALL FIRST-CLASS DECORATORS, &c.

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Guaranteed perfectly PURE, being free from HUSK and VEGETABLE FIBRE.

SCOTT'S MIDLOTHIAN OAT FLOUR, which is made entirely from the finest quality of Midlothian Oats, is so purified from the Fibrous Integument, that it has concentrated in it 80 per cent. more flesh and bone-forming properties than the finest Oat Meal, which is acknowledged to be the most nutritious of all Cereals.

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Sold by FAMILY GROCERS and CHEMISTS in Tins of Various Sizes.

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"International Health Exhibition" Supplement to

HEALTH

A Weekly Journal of Domestic and Sanitary Science.

EDITED BY DR. ANDREW WILSON, F.R.S.E.

"Reason's whole pleasure—all the joys of sense—
Lie in three words, HEALTH, PEACE, and COMPETENCE."—*Pope.*

THE INTERNATIONAL HEALTH EXHIBITION.

FIFTEENTH NOTICE.

GROUP III.—THE DWELLING HOUSE.

CLASS XXIII.—(Water and Earth-closets; Ash-closets, Commodes, Urinals, Disinfecting Powders and Fluids, Insect Destroyers) *continued*:—An extremely simple and we should think effective form of water-waste prevention is shown (519) by Mr. Milton Syer, Rye-lane, Peckham, S.E. It has a pneumatic action, the valve being connected by a small air-pipe with the water-closet, where it may be worked by pressing a knob let into the seat, or by the weight of the person using the closet. It will be obvious that a pneumatic valve has no working or loose parts to get out of order. There is simply a diaphragm of rubber to which is attached the weighted valve for closing the water-way. Above the rubber is a brass dome, which, being screwed down tight, forms an air-tight chamber; on the air being exhausted the valve rises, but so soon as the air gets back so soon the valve closes immediately. Provision is also made for an after-flush for valve and pan closets. The exhibitor claims for this pneumatic valve the following advantages:—Firstly: No cranks, wires, ball-levers, &c., are required in the fixing of this valve; simply a small air-pipe is taken from the valve in the cistern to the lifting apparatus in w.c., thus saving much labour and material. Secondly: It is frost proof—no frost can affect it, there being no wires to get frozen as is now the case; and often closet wires are broken by persons pulling the handle when they are frozen fast in the cistern. Thirdly: It is most simple but certain in its actions and perfectly noiseless.

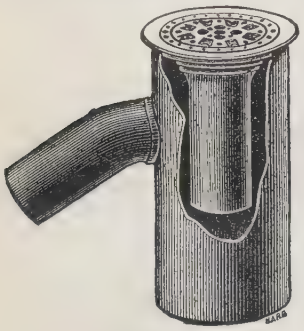
The Bower-Barff Rustless Iron Co., Limited, 23, Queen Victoria-street, exhibit (538) ornamental and art metal-work, hot-water pipes and castings, builders' and sanitary castings, traps, closet-fittings, &c., all made of iron, rendered rustless by the Bower-Barff patent process. The great gain derived from subjecting goods to this process is said to consist of their increased durability; and so successful have the Company been that furnaces capable of treating about fifteen tons of mixed castings per week have been erected near Bankside, Southwark, and are in daily operation. The process, which is effected at a moderate cost, does not in any way injure the quality of the metal. As to the effect of the process on the metal it may be interesting to quote the testimony of Mr. M. Fern, of Roehampton, who says: "In connection with extensive additions to Manresa House, Roehampton, in 1877 and later dates, I have made use of large quantities of tubing, both for hot and cold water, steam and gas, protected by Professor Barff's anti-corrosive process. At three different times since the above date I have had occasion, in the formation and alteration of drainage, to come in contact with the pipes laid down for the conduction of cold water in 1878, and have found them perfectly free from any kind of corrosion. The last time that I examined them was early in 1881. They were then perfectly clean, and retained their purple colour, even where most in contact with moist clay. The screw-joints were as easy to undo, when once started, as they were when perfectly new."

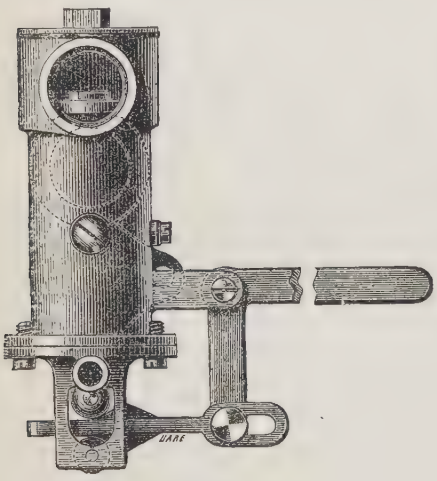
Messrs. Henry Owen & Co., 82, High-street, Kensington, S.W. (532), show a ventilating valve closet, in which some improvements are noticeable. It is so constructed that the water is retained in the basin by means of a valve working on a centre, and lifted by a lever attached to an ordinary pull-up water-supply, which flushes the basin and charges it with water. The outlet being in the front of the basin, makes it so that the centre on which the valve works is above the water-line, and in its discharge the deposit does not come in contact with the mechanical part of the valve as in the ordinary valve closets; and from the highest point over the soil-pipe, a 2 in. ventilating pipe is carried through the wall, entirely preventing any pressure of gas on the lower trap. It has also the advantage that the overflow from the basin is through a syphon at the back of the valve, the outlet being under water; this offers much greater security than the perforated outlet in the side of the basin, which in the ordinary valve closet commuicates with the lower trap. By these means offensive smells or noxious gases are entirely prevented from entering the building in which they are placed. Another of Messrs. Owen's exhibits is an intercepting trap formed by stoneware, for placing on the foot of soil pipes, by which the waste drains from the house are disconnected from the main drain to sewer. There is an air chamber through which a current of air is continually passing through the soil-pipe, at the same time no smell being allowed to escape through the open grating. Owen's water-waste preventive cistern, also shown here, consists of a stout zinc tank, about 14 in. by 12 in. by 5 in., and in its centre is fixed a trap drum or cylinder, which is attached to the bottom of the cistern by a fly nut and union. Inside this cylinder works another hollow drum, at the lower end being an india-rubber plug valve, which drops down into the seating, which forms the bottom of the outside cylinder. Through the centre of the drum is a pipe of about $\frac{5}{8}$ in. diameter, passing from below the seating to the level of the water-line in the cistern, thus acting at the same time for waste and vent pipe. The valve is lifted from its seating by means of a double action ball-cock, a forked lever working upon a pivot forming one of the actions of the ball-cock; upon the other action works the ball which drops with the water. Upon the valve being raised for the discharge by means of the lever, the action of which is reverse to that of the ball, the supply to the cistern is at once stopped, and no water can again enter until the valve is allowed to drop into its place, thus forming a complete waste-preventer.

Messrs. John Bolding & Sons, of the Grosvenor Works, South Molton-street (529), have expended considerable care on the arrangement of their stand, and have succeeded in

The ASSOCIATION FOR THE SUPPLY OF PURE VACCINE LYMPH, formed 1877, 3, Hemmings-row, St. Martin's-lane, London, W.C.; near Charing-cross Telegraph Office, 448, West Strand, W.C. Sole agents for DR. WARLOMONT'S Calf Vaccine.—[ADVT.]

bringing together a very comprehensive collection of the sanitary appliances for which the firm is so well-known. A few of their exhibits may be noticed in these columns with advantage. Bolding's patent "Bottle" trap is one of the best appliances we have seen, not only for preventing the escape of sewer-gas, but for catching all solid matters before they can enter the drain-pipe. The trap is intended to be fixed to kitchen and butlers' sinks, and the cup shown in the illustration, which catches all the solids, is easily lifted and cleaned out. Truss's patent water-waste preventing valves, for fixing to valve closets, is one of Messrs. Bolding's specialties, and are fully explained by the accompanying sketches. They have been approved by all the Water Companies. Their construction differs materially from that of many water-waste preventors shown in this Exhibition; they require no bellows regulator, they give under high or low pressure the desired quantity of water, and they ensure both a flush and an after flush. A great advantage they possess is that after the flushing action has been completed, the cistern is refilled immediately, whereas in most of the syphon preventors a few minutes must elapse before the apparatus is again ready for use. This, for instance, is the case with Messrs. Bolding's syphon after flush water-waste preventing cisterns, which are also designed to be used with valve closets. By the arrangement of the cistern a portion of the water is retained, so that if the handle of the closet is held up until the first flush ceases, the second or after-flush will come into the basin directly the handle is released (and not until then), thereby leaving the basin full of water. We believe this result is not attained by any other contrivance of the kind now in the market. The impossibility of the basin being left without water and unsealed is an obvious advantage. Amongst the many forms of closet manufactured and shown by this firm the "Grosvenor," or disconnected overflow-valve closet, deserves special notice. It is specially designed to prevent the escape of sewer-gas into the house. It will be seen by the accompanying diagram, that the overflow is carried by a separate rim to the back of the closet, and is completely disconnected from the closet. By this improvement, the generation of sewer-gas is prevented in the overflow and waste pipes, so common in w.c.'s where the overflow pipe is conveyed into the closet-box, and is thus exposed to the liability of the soil entering, and becoming, when decomposed, the source of much unpleasantness and risk. Another very good closet is Bolding's "Valve," which is made for fixing in places where it is impossible to fix a trap under the floor. They are fitted either with a P or S trap, and as the valve opens on the opposite side to the outlet, no paper or other matter can cling to the valve or obstruct the free passage through the trap. We ought not to leave this stand without mentioning the handsome and most completely-appointed baths, commodes, &c., which occupy quite half the space devoted to Messrs. Bolding's exhibits. The baths for the mansion constitute the morning tub—a greater luxury than ever; while the "Villa" bath—a





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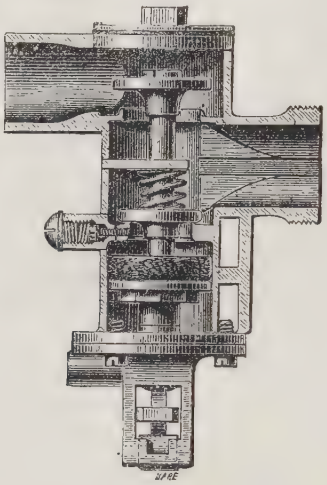

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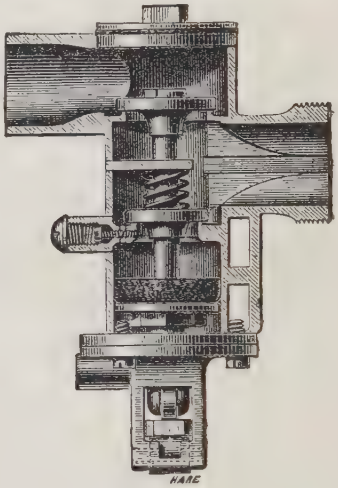

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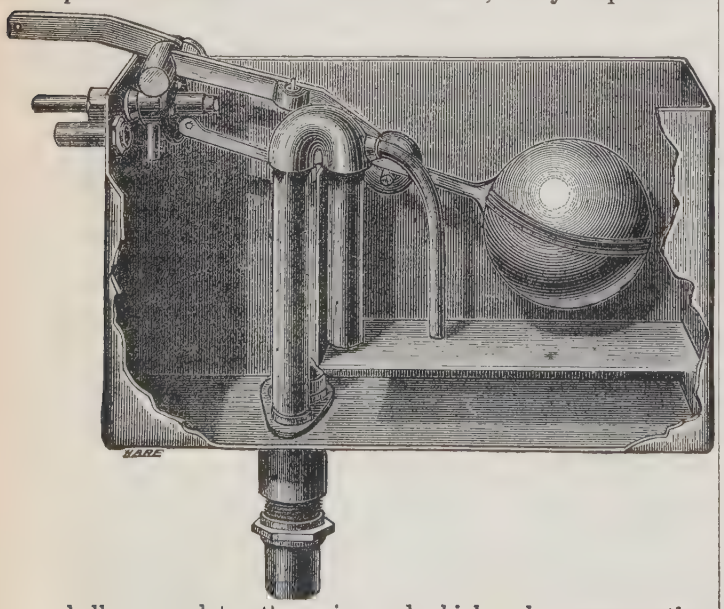


strong metal vessel, clean and neat in appearance, and requiring no wood fixing, is really a marvel of cheapness.

Mr. J. M. B. Baker, 62, Holborn-viaduct, shows (520) a patent water-closet disinfector as supplied to the ships of Her Majesty's navy, but with several improvements over those originally introduced. Its advantages are that it may be fixed to any closet in a few minutes, it has only one moving part, and it is not connected with any part of the water or drainage system. The improvements recently introduced enable the maker to supply the disinfector at less than half the price of the original apparatus. The disinfector is fixed in the bottom of the closet, and is connected with the handle-rod by a short arm. When the handle is depressed for the purpose of trapping the clean water in the pan a small quantity of the disinfecting fluid is injected into the water whilst it is in rapid motion, thoroughly mixes with it and remains as a trap for the ascending gases, which are thoroughly deodorised and rendered inoffensive and innocuous.

Another very effective water-closet disinfector is shown at an adjoining stand (526) by the London Patent Automatic Disinfector Co., of 53, Queen Victoria-street. This apparatus consists of a copper or brass ball containing the disinfectant and fitted on the floor level at the side of the closet pan. From one side projects a bend, connected with the handle bar; from the other runs a small pipe, terminating in the pan itself. With the raising of the handle, the disinfecting fluid is forced into the pan, where, after flushing, a little of it is left, so as to destroy any escape of gas which the faulty construction of the closet might permit. The invention of this automatic apparatus fully supplies a want long felt in every household, however good may be the sanitary arrangements as regards closets and drains; indeed, its advantages must be patent to the most casual observer. It is applicable to any kind of closet or urinal, is fixed entirely out of sight, without disturbing the pipes. Its cost is very moderate. It will contain sufficient disinfectant for 10,000 gallons of water, which, under ordinary circumstances, would be more than sufficient for one year, and can be re-charged in less than five minutes at a cost of 2s. 6d., without disturbing the woodwork of the w.c. Carbolic, or any other soluble or liquid disinfectant which may be desired, can be used. The apparatus is of the most simple character, cannot possibly get out of order, and, being made of copper and brass, will last for many years. As a proof of its success it may be added that it is fitted to the closets at the Crystal Palace, the Bridge House Hotel, the Central Meat Market, the Great Eastern and Brighton Railways, St. Thomas's Hospital, and other places.

Messrs. T. & W. Farmiloe, Rochester-row, Westminster, have an exhibition (531) of valve-closets, lavatory basins, patent syphon valveless water-waste preventor, and other sanitary appliances of their manufacture. Their "Duplex" Valve-Closet is constructed with two pipes from the supply arm, one to charge the overflow arm each time the basin is charged with water, and another to syphon out the trap under the safe. The Duplex Valve-Closet also has a connection from the supply pipe to the overflow arm, to ensure its being cleansed each time of using. The Westminster Valveless Syphon Water-waste Preventor, for flush-out and cottage closets, is made in cast iron, with copper or galvanised iron fittings, and is extremely simple and effectual in its operation. Messrs. Farmiloe show also a variety of lift and force pumps manufactured by the firm.

Messrs. J. G. Stidder & Co., London Sanitary Engineering Works, 50, Southwark Bridge-road, S.E. (534) have a very complete collection of their manufactures, which include nearly every description of sanitary apparatus. Burge's new patent "openway" sink-trap is one of the firm's specialties, and seems not unworthy of the claim put forward on its behalf of being the most perfect form of trap yet introduced. The whole of its internal parts are readily removable, so that a small trap is easily inspected and as easily cleaned, while in the larger sizes the trap becomes a man-hole in itself. In stables, slaughter-houses, and other places where large accumulations of filth or refuse occur, these advantages are more especially apparent, as, with a small cess-pit beneath the trap, the solid refuse matter can be periodically removed. Burge's "Open-way" traps everything immediately it passes the grating, and thus effectually seals the cess-pit beneath. Stidder's Patent Hydraulic Ball Valve, also shown here, is well worth the attention of sanitary engineers, water companies, and the public generally. Its security and its non-liability to derangement arise from the fact that it works on the strictest and simplest mechanical principles; and the impossibility of its leaking is due to a method of construction which causes the valve to close more tightly the greater the pressure of water is from the main. In addition, it is claimed for this valve that it will fill a cistern more quickly than any other ball valve in use. Stidder's patent has passed the test, and has the approval, of the New River and other water companies. The firm are makers and exhibitors of wall and high-pressure filters, the former of which have been fitted to several of the Board Schools in London. Both are intended to be fed direct from the supply-pipe, both are tolerably rapid in their action, and they have much the same filtering media. The water from the main first passes through particles of compressed charcoal, is next forced through a glass cylinder, and thence into a black animal charcoal. Some very excellent lavatories and slate closet-ranges, suitable for schools, barracks, &c., are shown at this stand. The latter are connected with Stidder's water waste-preventer, which is fixed directly over the discharge-valve of the closet-range below, and the construction of which prevents any water running into it during the time the cistern is being flushed. The firm are also makers of some very strong, serviceable, and not unhandsome drinking-fountains, designed for use in board schools. The newly-arranged wash-up sink, exhibited here, has been patented by Mr. J. G. Stidder, in order to meet not only the various requirements of an ordinary kitchen sink, but also to fulfil a variety of purposes for which a number of domestic appliances have hitherto been required. It forms a most convenient receptacle for washing household crockery, plate, linen, &c.; it is also a very excellent "children's bath," while it can be used as a general lavatory by adults. It is adapted not only for the cottage of the workman, where its usefulness is beyond question, but also for large establishments and mansions, where its employment as a sink for the scullery or the butler's pantry shows it to be invaluable, as the breakage of china, glass, and other fragile articles by their contact with stoneware or iron sinks is entirely avoided. The sink is so arranged that by lifting a plunger the water within the trough is discharged through a trap, and the top plate is ribbed in such a manner as to allow of the thorough drainage of soap, brushes, or whatever articles may be placed upon it in process of cleansing, and by fixing hot and cold water taps just above the sink, a supply and discharge of water is obtained without the least trouble.

Mr. George Jennings, of Stangate (522) is so well-known as a sanitary engineer that it would be a work of supererogation to write at length on his manufactures, which have long been well and favourably known to the public. His exhibits include the "Trapless" Valve Closet,

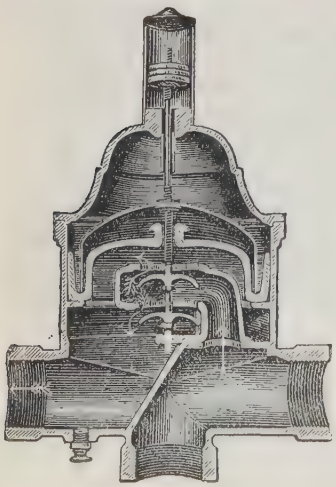
which is constructed to allow a free escape of overflow water, while hermetically sealing the closet against the ingress of impure air; a combined sink and wash-tub which may be strongly recommended on account of its usefulness for buildings of all classes; and various forms of urinals, lavatories, &c.

The Domestic Engineering and Sanitary Appliances Company, of 24, High Holborn, exhibit (566) the "air-flush" system of house drainage, first introduced into practice by Mr. R. Weaver many years ago, and consisting of the "Weaver" ventilator trap and the "Imperial" soil-pipe exhaust ventilator. The traps are fixed in the line of drain between the house and the sewer or cesspit. The fresh air inlet is connected by pipes to the ground level or other suitable point of intake; a perforated grid is provided to carry off the surface water, and the trap has a vent which may either be used to ventilate the sewer or cesspit, or may be cemented up. In connection with the ventilator a trapped rain-water head is made which is useful in positions where it is necessary to receive roof-water into a soil-pipe. A free passage is provided for the water, but there can be no escape of air, and rain-flush through the soil-pipe and drains is not interrupted. Several varieties of valve water-closets and water-waste preventors made by this Company are shown here, and also the Oxford Special Vent, which is designed to prevent the rush of foul gases into the apartment which is so freely permitted by many old closets. The vent conducts these gases from the closet-pipe before they can emerge into the pan to the outer wall, so that the vapours are discharged into the air. Another manufacture of this firm, the "Oxford" wash-out closet, is a great improvement upon the old forms of wash-out and servants' closets, and all descriptions of valveless w.c.'s devised to retain a portion of water in the bottom of basin to receive the soil, inasmuch as the ugly and always offensively smelling side or back opening (the surface of which, becoming coated with ordure, evolves gases of putrescence) is avoided in this new closet, by dipping the deflector plate into the water, forming a complete seal or trap. It is well adapted for nursery purposes, and for the reception of slop-water. The hitherto insurmountable difficulty of cleansing the basin and trap at each flush out, and carrying off the liquid, solid, and floating contents, is, in the "Oxford" wash-out closet, overcome by slanting the deflector-plate in the direction of the outgo of the basin towards the trap. The basin flush-rim is also constructed to throw the bulk of the water, with cascade effect, in the direction of the outgo, and with the "Oxford" automatic or "Oxford" single-action flush-tanks, the discharge-valves of which are of large area, the very low height of 2 ft. of discharge-pipe ensures thorough cleansing of the basin. Moreover, by employing a metal-trap for indoor use, the great advantage of a permanent gas-tight plumber's wiped joint is obtained. It ought to be known that it is impossible for any workman to make and maintain a sound connection between the trap outgo and soil-pipe branch in closets furnished with earthenware traps for fixing indoors, by reason of the putty-joint becoming disconnected, from vibration of the floor, and the unequal rates of expansion between the rigid earthenware and the metal soil-pipe, whereby sewer-gas and soil-pipe air freely escape through the defective and out-of-sight juncture—a fatal fault with, and an evil so frequently overlooked in some of the wash-out and similar closets now so extensively used.

Puscher, the Nuremberg chemist, says that paste made of starch, glycerine, and gypsum will maintain its plasticity and adhesiveness longer than any other cement.

If you want knowledge you must toil for it; if you want food you must work for it; and if you want pleasure you must toil for it. Toil is the law. Pleasure comes through toil, and not by self-indulgence and indolence. When one gets to love work his life is a happy one.—*Ruskin.*

Head Injuries and Madness.—Some interesting observations on the connection between insanity and crime are to be found in extracts from the report of the medical officer of the Woking Prison for Females for the past year, recently issued. After instancing the case of a woman, who was over and over again convicted and sent to prison, whose passion for destroying prison furniture and her own clothing never ceased, and who died at fifty years of age, whispering a regret that her strength would not permit her to indulge as formerly in acts of violence, the medical officer goes on to say, in connection with this subject of wrong-doing and the condition of the brain, that he was led during a series of examinations to the discovery that a very notable number of convict women have had their skulls fractured. It is not uncommon to hear a woman say, "I knew I was in a temper, but I could not help it; I was mad." This irascibility and loss of self-control are, he adds, not unfrequently associated with a damaged skull, and presumably an injured brain. So seriously are the functions of the brain disturbed after external injuries, often of a slight degree, that a very small quantity of alcoholic liquor is sufficient to produce a maddening effect on the subject of such an injury.



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Sanitary Institute of Great Britain, Newcastle, 1882. The Only Medal.
Sanitary Institute of Great Britain, Glasgow, 1883. Star Certificate. This Certificate is the Highest Award, and only obtainable by those who already hold the Medal of the Institute.
National Health Society's Exhibition, London, 1883. Silver Medal.
International Food Exhibition, London, 1881, Silver Medal. 1882, ditto.

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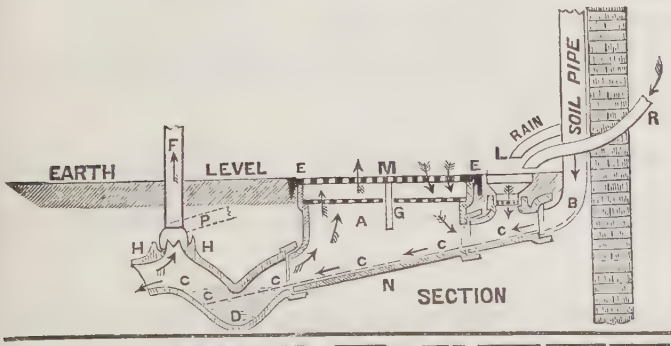

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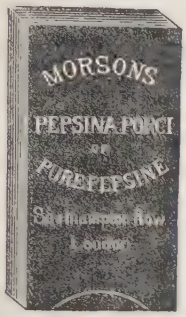
No. 16.] FRIDAY, AUGUST 22, 1884. [*Gratis with* "HEALTH."



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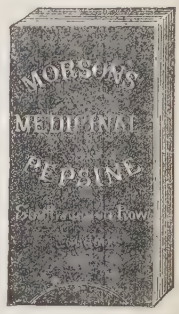

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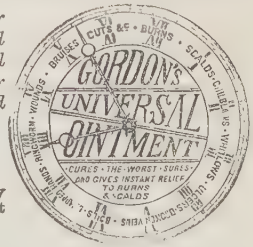

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FIFTEENTH NOTICE.

Group III.—The Dwelling-House.

Class XXIII.—(Water and Earth-closets; Ash-closets, Commodes, Urinals, Disinfecting Powders and Fluids, Insect Destroyers) *continued*:—Amidst the crowd of appliances of every kind, the result of years of patient thought and trial, and all more or less effective, for dealing by means of water-closets, sewers, pipes, and sewage-outfalls with the refuse of large aggregations of human beings, we are apt to forget that there are other methods of facing this great sanitary problem than by simply floating the town sewage down great culverts, and emptying it into the sea. Not, indeed, that there is much reason for such forgetfulness. In the same Metropolis there is at this moment an International Health Exhibition on the completest scale yet known, and a sewage problem which every summer reminds us has not yet been really faced at all. Of course, we know very well that the water system of treating sewage in London has been adopted for some years, and could not be altered except at a cost from which even London would shrink. Nevertheless, it is not uninteresting to observe what can be done by, and what is to be said for, an opposite mode of facing this great nineteenth century difficulty. In this Exhibition there are two or three methods displayed by various individuals, and first of all, we will examine that shown at Stand 529, by Dr. Nicholls, of 283, Strand, W.C. The doctor is the inventor and patentee of a system of deodorizing and purifying human excreta, and rendering the same specially valuable for manurial purposes—a system which has already secured for itself fair practical trials in various parts of the country, and has given, if we may judge by the testimonials, complete satisfaction. The leading sanitary features of the process are thus stated by the inventor:—Firstly: The fæces are deodorised and hermetically sealed in a vessel as soon as they are passed from the body. Secondly: Cheapness, portability, and efficiency, combined with the utmost simplicity, bring this system within the reach of all classes of the community. And thirdly, the scientific and inodorous method and means employed to convert the excreta contained in the pan of the closet into a manure, dry, sweet, and rich by reason of retaining all the fertilizing properties demanded by plant life—so that exhaustion of the earth, when a plentiful supply of this manure is used, becomes impossible—stamps it as one of the highest articles of commerce, apart from the great sanitary revolution which must inevitably follow upon the development of this system.

Dr. Nicholls has several means whereby he carries these principles into effect. His simplest closet is designed for labourers' cottages and small houses in the country where there is no regular sewage system, and costs only fifty shillings. The appliance consists of a strong galvanised sheet-iron box, covered by a wooden seat, and surmounted by a metal box which fits over the seat of the closet. Underneath the wooden seat is a tray with a perforated floor, and a similar tray forms the lower part of the box. These trays are filled with ordinary soot, or powdered charcoal. After the closet has been used the tray is let down sharply on to the seat, and the vibration causes a sufficient quantity of the deodorising substance to fall into the closet. This operation is repeated until the closet is full, when it will be necessary to empty it. This can be done in either of the following ways:—Firstly, by throwing sufficient earthy matter of any kind upon the soil in the privy to absorb or soak up the urine, and mix the soil into a pasty mass, when it can be shovelled out, and carted away as manure. Secondly, the liquid soil can be scooped out into any vessel and removed as liquid manure. Thirdly, the closet and its contents can be taken to the dung-heap, poured upon it, and covered over with a little dry soot, when it can be used as manure. We ought to observe that all the closets and dust-bins made by Dr. Nicholls (and of all of them this is the main principle), are so fixed that the joints are absolutely gas-tight, even the box which fits over the closet-seat, forming a gas-tight joint. But, of course, a more elaborate arrangement than this simple privy must be devised for towns, and Dr. Nicholls shows two other closets, slightly higher in price—the one fitted with a syphon, and the other with a plug-pipe. In his system of town sanitation, of course, the fluids would be drawn from the closet, nightly, either by means of a suction-pump acting on the syphon or by the plug-pipe into the drains, which would then be used only as the conductors of water; or, the whole of the closets could be emptied each night into receptacles provided by the local authorities, and sold as liquid manure. It must always be remembered that the fall of deodorising matter each time the closet is used renders the operation innocuous. Dr. Nicholls' third system involves the collection of this deodorised excretion, and its conversion into manure which, while more powerful than the artificial manure of commerce, can, at the same time, be sold at an absurdly low cost. An analysis of this manure gives the following results:—

	Per cent.
Moisture dried at 212 deg. Fahr.	39·25
Organic matter including nitrogen, 3·9435; ammonia, 4·6985	31·34
Ash, containing sulphuric acid, 2·20; oxide of calcium, 1·60; magnesia and alkalis, 5·64; oxide of iron, 2·10; phosphoric acid, 0·52; insoluble matter, 17·35	29·41
	100·00

It will be seen that the system consists in returning to

The Association for the Supply of Pure Vaccine Lymph, formed 1877, 3, Hemmings-row, St. Martin's-lane, London, W.C.; near Charing-cross Telegraph Office, 448, West Strand, W.C. Sole agents for Dr. Warlomont's Calf Vaccine.—[Advt.]

the earth as manure that which, after it has passed through the chemical changes which we call digestion, we draw from the land in the form of food. That this is Nature's own method of dealing with this great sanitary problem there can be no doubt, and an inspection of Dr. Nicholls' patents, even if it does not convince the visitor that this is *the* system, will, at any rate, supply him with material for much useful thought.

Full of interest to sanitarians, too, is the very comprehensive collection of models and plans which has been sent by the Corporation of the city of Manchester (524) for the purpose of illustrating the methods adopted by the local authorities of Cottonopolis in disposing of the refuse of the city. The Health Committee of the Corporation was formed in the year 1868 to assist the Officer of Health, who had been appointed a short time previously to carry out the measures which he might think necessary to improve the sanitary condition of the city. In that year the average death-rate of Manchester was 33 per 1,000 inhabitants. For the previous century this had been about the average rate of mortality—that is, for the entire period. In the year 1868 there were no hospitals, either within the city or available for its use, for the reception of cases of infectious febrile diseases; no public baths; no public slaughter-houses; no ventilation of sewers; no means of dealing with excreta, nightsoil, or any matters capable of becoming public nuisances. The city contained 60,000 open cesspools, equal in the aggregate to a lake four feet deep and covering an area of sixteen acres; in many cases one closet served for a dozen houses; heaps of nightsoil and animal and vegetable garbage of many thousand tons lay festering in the city; there was no proper sanitary inspection; no disinfection of houses after the occurrence of infectious disease; no notification of the occurrence of these diseases to the local authority by medical men or others; no ambulance for the conveyance of patients; no oven or other disinfecting apparatus for the disinfection of clothing, bedding, &c.; no arrangements for the examination of the genuineness and purity of food and drugs, or for the regulation of dairies, cowsheds, and milk-shops. The black smoke in the city from mills and workshops was allowed to be three times its present quantity. All the 60,000 cesspools and closets drained into the sewers, and passed from thence into the brooks and rivers, and there were thousands of cellar dwellings. In the present year (1884) there are five hospitals for patients with infectious disease—capable of extension to any required amount—immediate notification to the Officer of Health of the occurrence of any case of such disease, carriages for the conveyance of the patients, officers to assist in the removal, disinfectors to purify the houses, disinfecting ovens for clothing, bedding, &c., and conveyances for their removal and return. Maps are constructed weekly to show the distribution and localisation of each form of infectious disease, and tables of its prevalence. All cellar dwellings are permanently closed; all cesspools and middens abolished; all communications of the 60,000 reconstructed closets with drains or sewers rendered impossible; all contents of closets and dust-bins removed within a few hours, or at most a few days; all communication between sink-pipes and drains interrupted or in course of interruption; and the sewers are ventilated by 2,000 shafts, which are continually being added to. Now public baths of the greatest amplitude and best construction are placed in several of the most densely inhabited portions of the city, in addition to which water of the purest quality and in abundant supply is furnished to almost every house; in the city for drinking, washing, and cleansing, and is available from some near source to every house; parks and open spaces have been provided (the former before 1868); milk, food, and drugs are regularly and systematically examined by a skilled public analyst; large abattoirs or public slaughter-houses have been constructed, and are used with few exceptions by the butchers of the city; the smoke from mills, &c., which was allowed to be black for three minutes in the half-hour a few years ago is now limited to one minute; and the noxious vapours from chemical works are under special regulations. At the Sanitary Works at Holt Town (plans and sections of which are exhibited at this stand) over 82,000 tons of refuse are dealt with every year; the rag, paper, wire, and tin (110 tons) are sold, the wet and dry cinders are mainly used as fuel for the furnaces which work the machinery, whilst the remaining matters are converted into manure, soap, candles, lubricating grease, mortar, bricks, and concrete. The manure especially has a large sale amongst agriculturists, being sold mainly by analysis and at a very low price, the Corporation looking to the absolute necessity of removing the sewage, and not caring, therefore, to make a large profit out of these transactions. These are the general principles which have been applied to town sanitation in Manchester, but there are models at this stand which show the details of these principles. First in order is shown a model of the Manchester cinder-sifting or pail-closet, constructed of the full size of the closets usually erected in connection with dwelling-houses in the city. The pail under the seat is sufficiently large for the use of a family of six persons. The cinder-sifter is placed on one side of the closet, and is intended to screen the ashes from the cinders of an ordinary fire, which, when taken from the fireplace, are put into the opening at the top. The fine ashes, falling through the perforated screen, are conducted by a shoot into the pail, where they deodorise the fæces already there, whilst the cinders fall to the bottom, whence they are removed by a small door, and may be again used as fuel. In the recess behind the closet is a dust-box or bin into which can be thrown, either through the opening at the side or the double doors at the back all the refuse from the house. At the back of the closet one of the doors swinging from the top opens inside, and is used by the occupants of the house to which it belongs; the bottom door of the pair slides upwards like a railway-carriage window, and is there fixed, whilst the men whose duty it is to seal the pail hermetically by fastening upon it the cover, remove it, and put a clean one in its place, when the door is again lowered. Next is seen a model of the Manchester commode for use in a sick room or other place in which it is not convenient to erect an ordinary closet. It is lent temporarily for emergencies, where numbers of people are expected to congregate, as at exhibitions or congresses, the Corporation taking charge of the commodes during the time they remain. The pail and cover are made of steel, with solid top and bottom rings, and galvanised. They each hold ten gallons, and with slight repairs will last about ten years. The top and bottom hoops, the handles, and the lugs whereon the lid is fastened, are used up again. The cover is made of iron, with a steel spring, and a flanged tubular indiarubber ring on the under side, so that when the lid is pressed by the spring on to the top of the pail the latter is hermetically sealed by the tube. A model of the Manchester collecting van is exhibited, made one quarter the full size. This is used for collecting the pails and domestic refuse. The four compartments receive twenty-four pails, and the space at the back will contain the refuse from twenty-four houses. The van makes twenty-eight journeys per week, carrying from the depôt twenty-four clean and empty pails each journey, and bringing back again the

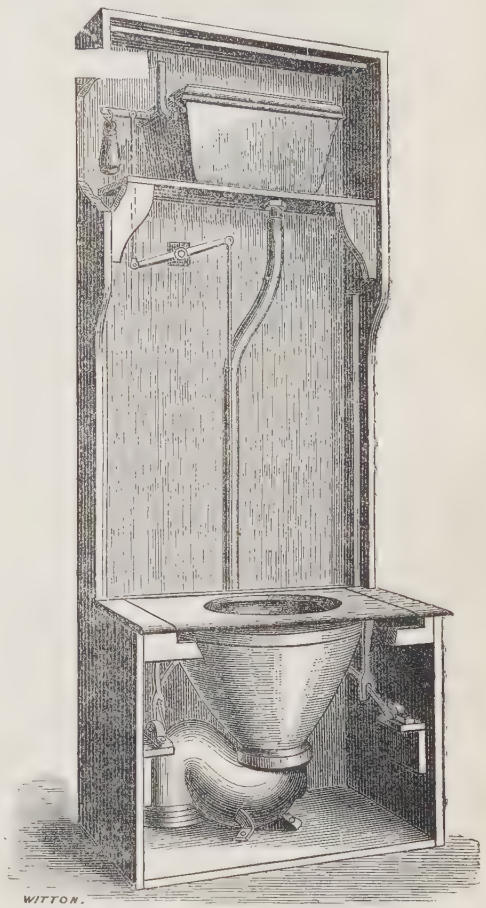
full ones. Two men accompany each van, and they travel about sixteen miles per diem. The van is drawn by a single horse. There are also shown models of boilers used in the sanitary works, specially constructed for generating steam by the consumption of the house refuse named. The furnaces are large, and the heating surface great, there being inside the boiler thirty-three conical tubes and four pockets. About ten tons of refuse is consumed in twenty-four hours. There are also shown models of apparatus for manufacturing fæces and garbage into concentrated manure; and of apparatus for converting house refuse into bricks (this group representing machinery which will convert about twelve tons of house refuse into 4,000 to 5,000 bricks). Samples are also shown of the soap, oil, candles, &c., which we before mentioned as being made from a portion of the refuse. The sanitary result of all these expensive appliances, and of all the thoughtful care exercised by the authorities is this, that the death-rate of the city has been reduced from 33 per 1,000 to about 24 or 25 per 1,000. In comparison with many other towns, this does not seem a low death-rate, but in comparison with its own former death-rate it is so, though it will no doubt be much further reduced; but Manchester is unlike almost all other towns or cities in being a city of cottages, occupied by 340,000 people of the working class and the residuum below them. Of the four classes to be found in Manchester during the day the first and nearly all the second live outside the city; the third and fourth are almost the sole residents, and amongst these the death-rate is always high, wherever they may be found.

The Corporation of St. Helens, a very much smaller town, treat their house sewage on the well-known pail and tub system, and send to this Exhibition (525) a full-sized model of pans and closets upon this principle.

Moule's Patent Earth Closet Company (Limited), 5A, Garrick-street, W. (535), have, for a long time past, been before the public with their system, and, so far, have had no reason to complain of want of success, either as exhibitors or traders. The principle of Moule's system is founded on the now well-known power possessed by dry earth of deodorising and disinfecting fæcal matter: a given quantity of earth, if applied in detail to fresh excrement, destroying all smell, and absorbing all noxious vapours. The practical application of this principle consists in the employment of a reservoir of earth, and of a simple and durable form of apparatus suitable for measuring and delivering a regulated charge of earth each time that the closet is used. The system is applicable to most existing closets, to all new closets, and to commodes. Its employment effectually remedies all the evils attendant on common cesspool privies, on water-closets, and on commodes. The earth system is economical, as regards both its prime cost and its subsequent working expenses; it involves the use of no costly cisterns or pipes; by it is incurred no risk of injury by frost; while the product of the closet is a manure of great value, admitting of application with advantage to a very great variety of, if not all, crops and soils. The supply of the earth, and the removal of the manure, are attended with no more inconvenience than are the supply of coal and the removal of ashes; whilst the value of the manure obtained amply repays the cost of such supply and removal. Where there is no adequate supply of dry earth, but instead thereof a good supply of ashes, and where the manurial value of the product is deemed of secondary importance, sifted ashes may, either wholly or in part, take the place of the earth; the closets manufactured and sold by Moule's Patent Earth-Closet Company being available for use with earth, ashes, or charcoal. These closets are manufactured in every variety of size, shape, and price, for use in cottages, mansions, schools, hospitals, factories, and offices, and they may be fitted upstairs as well as on the ground-floor of a house.

Other forms of earth closets are also shown by Mr. John Parker, Woodstock, Oxon (544); Messrs. Lawson & Donkin, Trinity-chambers, Bournemouth (545); and the Sanitary Appliance Company, 4, St. Ann's-square, Manchester (548).

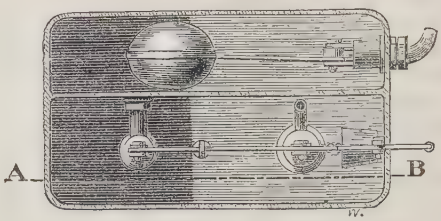
Retracing a little our steps, we come to the exhibit (511) of Messrs. Jno. Warner & Sons, of the Crescent Foundry, Cripplegate, E.C. The firm are hydraulic, horticultural, and sanitary engineers, and amongst their collection here is a portable water-closet and commode, which should commend itself to the medical profession and to all who have the care of sick persons or the management of sick-rooms. The commode can be made with any sort of ornamental



wooden covering, according to the taste or the purse of the purchaser. The pan is made with a self-acting valve, and the basin is fitted to drop into a water-groove, so that when the pump-handle is raised, sufficient water passes to cleanse the basin and to form an air-tight joint to the valve, and there can be, therefore, no escape of effluvia from any part of the apparatus. The pail and basin are provided with a lid and handle like the ordinary slop-pail, in order that they may be removed when necessary, and the cistern contains sufficient water for the closet to be used several times. The only condition in which this commode could fail to answer to every requirement is that of negligence on the part of the persons charged with the duty of filling the cistern. Some commodes of the ordinary type without any cistern arrangements are made by this firm and fitted with Chubb's Patent Water Joints, the escape of any effluvia being prevented by putting a little water into the

rim into which the lid fits. Messrs. Warner & Sons are the manufacturers of two good valve closets, the "Special Valve," and the "Villa Valve." The former are fitted with Bower's Patent Overflow Sewer-Gas Trap, and amongst the many points of excellence which they possess are that the basins are so arranged as to prevent splashing, and give a quick discharge without hanging up or corrosion; that the overflow is thoroughly sealed (when once charged) against sewer gas; that the main valve is so placed as to give a full way, and prevent choking; and that their action is comparatively noiseless. The "Villa Valve" closets are constructed on much the same principle, but in a cheaper form. A good and cheap earthenware rapid flush closet, with D trap, is also shown by this firm. It seems to meet the great objections hitherto urged to

this class of closets, viz., the difficulty of driving the soil and paper from the basin. Much care has been taken in designing the shape of the basin to get the greatest amount of water to remain in it, and at the same time offer the least possible resistance to the action of the flush. The water enters the basin at the flushing arm exactly opposite to the outlet, and by this means the whole power is utilised and a perfect flush obtained. The flushing rim is so formed as to wash the whole surface of the basin, at the same time allowing the main volume of the water to discharge immediately opposite the outlet. Over the discharge opening is a plate, which, on removal, gives access to the trap below, and allows of its being cleared should any foreign substance have been thrown into the basin. This prevents such matter being carried into the drain, or soil-pipe, with the probability of causing a stoppage where it cannot easily be got at. The trap is in every case made loose, so that it may be turned to any position to suit the soil-pipe, this arrangement being further facilitated by the basin being circular on the top. Amongst a number of water waste preventers and flushing cisterns shown by Messrs. Warner & Sons, the best seems to be

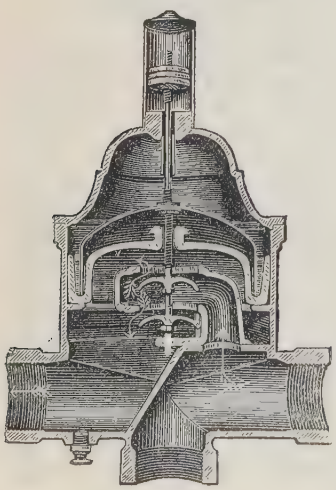


that of the "Rotherham" pattern. It is constructed upon a double valve and lever principle, by which only one valve can be opened at each movement, so that in case of opening for a flush of water, the inlet valve must be closed before the outlet valve can be opened, thus preventing a bye-pass and consequent waste. The other exhibits at this stand include copper cooking utensils, fire-extinguishers, &c.

This is also the class in which are shown specimens of the numerous family of disinfecting preparations for household use; and here are to be seen exhibits from the best known makers, as well as samples of preparations which have seldom or never been heard of before.

The following testimonial of a certain patent medicine speaks for itself: "Dear Sir,—Two months ago my wife could scarcely speak. She has taken two bottles of your 'Life Renewer,' and now she can't speak at all. Please send me two more bottles. I wouldn't be without it."—*Norristown Herald.*

Babies' Food.—Probably almost every one agrees with the truth of the general proposition, that for the first half-year of infant-life the mother's milk should be the only food for babes; but where a poor woman has to leave her infant in order to earn money for the support of her husband, or where the lady of fashion finds that the claims of Society are so strong as to efface the sweet duties of motherhood, the question has to be answered as to the next best food. The physiological chemist brought in his answer,—having made an analysis of human milk, he prepares a patent food which, he thinks, ought to be even superior to the original article. But his compound is never absolutely fresh, and, when reared on it, infants are too apt to grow weak and flabby. Most likely it contains some starchy element which finds no representative in human milk—if so he might almost as well put in fine sawdust.—*Dr. Owen.*



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Gentlemen,—I have the greatest pleasure in acceding to your request that I should, from my experience of the Martin's Bandages, testify respecting their excellence.

My knowledge of the quality of Bandages of English make is limited; for, having, about fifteen months back, applied bandages sent to me from this source, and noting the evident irritation and discomfort produced by them—so great, indeed, that each patient soon discontinued their application—I ceased to recommend and use them.

In April of this year, I for the first time used the original Martin's Bandage, and since then I have applied them and none else to the limbs of nearly twenty persons suffering from a variety of complaints, such as ulcers of the leg of old standing, which had resisted all treatment for more than fifteen years; varicosities (the unsound leg of one patient, a man, measured 25 inches round the calf, against 16½ inches, the size of the sound leg; and his condition was such that, before coming under my care, it had been by his former attendant seriously debated whether or not the leg should be amputated to save life. This man goes about wearing a 21-foot Bandage, and the calf of the unsound leg now measures 18 inches); erysipelas, œdema, rachitis, &c.

Suffice it that all, both young and old, have been enabled to wear them with comfort; most of the cases under treatment have been cured, all benefited, and many although well, continue to wear them on account of their safety and the support they give rise to.

I may appear to have said too much in their favour. I can assure you that my feeling is that I have said too little. The great success attending their use evidently arises from the excellent purity, smoothness, impermeability, and non-irritating nature of the Indiarubber of which each Bandage is composed.—I am, &c.

EDWARD C. ANDERSON, M.D., M.A., Cantab.

CAUTION TO THE TRADE.—The Sole Agents for the Genuine Martin's Bandages request the Trade to compare their Prices with those commonly charged for worthless imitations, which are advertised as "Recommended by Dr. Martin," or as "Suggested by Dr. Martin," which is misleading, the vendors having not the shadow of a title to use Dr. Martin's name in connection with their bandages Each GENUINE bandage stamped with Dr. H. A. Martin's signature is warranted to be perfect in every respect, and to wear well.

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For the Leg, from the Foot to Groin.—No. 2, thick, 16/6; No. 2a, medium, 13/-; No. 2b, thin, 10/-.

For the Knee-joint and Thigh.—No. 5, extra thick, 5/-; No. 6, extra thick, 7/9; No. 7, medium, 7/6.

For the Ankle, Wrist and Forearm.—No. 3, thick, 3/6; No. 3a, thin, 2/9.

For other sizes see complete Price List, also Dr. H. A. Martin's PAMPHLET, describing Method of Treatment, which are sent Post Free, on application to the Sole Agents,

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The essential requirements in Diapers are the rapid and thorough absorption of all secretions, and the prevention of odours resulting from decomposition. Nothing hitherto produced answers these requirements so perfectly as **HARTMANN'S HYGIENIC WOOD WOOL DIAPERS.**

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1. Hartmann's Patented Wood Wool has an enormous capacity of absorption, so that as a rule the use of one of **HARTMANN'S HYGIENIC WOOD WOOL DIAPERS** will be found equal for all practical purposes to many of the ordinary or any other kind.

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3. The Diaper is very light, and will always remain flexible and soft, an important advantage over the ordinary Diaper, which is necessarily heavy, hot, and liable to chafe the skin during its use, all of which disadvantages are entirely avoided in using **HARTMANN'S HYGIENIC WOOD WOOL DIAPERS.**

4. As the watery secretions can freely evaporate, the Diaper will always feel dry and remain soft. This is due to the nature of the material employed, and adds greatly to the comfort of the wearer. The Diaper also being constantly cool, offers a striking feature which no other Diaper, or anything of the kind, possesses.

5. The moderate price at which they are sold, bringing them within the reach of everyone, will allow their destruction after use, by simply burning them, a fact which, from a sanitary and economical point of view, as washing is dispensed with, is of the utmost importance.

N.B.—The burning of the Diaper can be effected at any convenient time. The antiseptic properties of the material will prevent any smell whatsoever while being kept after use, until convenient to be burned. The latter process is also entirely unattended by any smell of any kind.

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See "Health," Aug. 22, 1884.—Page 316.

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"International Health Exhibition" Supplement to

HEALTH

A Weekly Journal of Domestic and Sanitary Science.

EDITED BY DR. ANDREW WILSON, F.R.S.E.

"Reason's whole pleasure—all the joys of sense—
Lie in three words, HEALTH, PEACE, and COMPETENCE."—*Pope.*

No. 17. FRIDAY, AUGUST 29, 1884. [*Gratis with* "HEALTH."

THE INTERNATIONAL HEALTH EXHIBITION.

SIXTEENTH NOTICE.

GROUP III.

CLASS XXIII. — Disinfectants, &c. (*continued*) : — Messrs. Condy & Mitchell, the makers of Condy's Fluid, exhibit (561) some interesting specimens of permanganates of silver, of lime, of soda, and the different oxydising and antiseptic salts of iron, manganese, &c., which enter into the composition of their specialties. They also call attention to the confirmation which their views on disinfection have received by the latest investigations into the nature of infective matter. On the one hand, M. Pasteur finds that the existence of the microbes, or living germs, which he regards as agents that propagate diseases, depends upon the exclusion of atmospheric oxygen; while, on the other, Mr. Vincent Richards, of Madras, believes the cholera virus to be of the nature of a definite organic chemical compound which is doubtless of an oxydisable nature. In either case Mr. Condy's method of purification by oxygen in a state active for combination must claim a high place among various methods of preventing the myriads of disease germs. Not that Mr. Condy holds that *antiseptic* action is of no value at its proper time, when purification is accomplished, and it becomes desirable to avoid a recurrence of putrefaction, for he includes several antiseptic salts in his fluid. In the pamphlets issued by the firm, allusion is made to Dr. Dougall's experiments with the matter of small-pox, in which the lymph was found to have retained its infectiveness after months of exposure to the vapour of carbolic acid. The living germs commonly spoken of as "disease germs" are shown to be so resistent to the action of the tar acids that a man could not exist in the vapour that would be required to destroy them. This being so, the popular practice of dusting over fever-breeding matters with a little faint-smelling pink powder cannot be considered likely to be efficacious. Another preparation of the same manufacturers is Condy's Ozonised Water, a pure and almost tasteless oxygenating preparation for the toilet. A few drops of this added to a tumbler of water give it a beautiful rose tint and forms a sanitary mouth wash which leaves a delightful sense of purity, sweetening the breath, and obliterating the odour of tobacco, &c. It is used by public singers for strengthening the throat and voice, and the professor who, rightly or wrongly, recently likened the effects of ozone in strengthening the voice to those of the Italian climate, might have supported his teaching by reference to the action of Condy's Ozonised Water.

The Sanitas Company (Limited), Three Colt-lane, Bethnal-green, exhibit (554) samples of the various preparations of "Sanitas," an article whose excellent disinfectant qualities are well known to the public. "Sanitas" is well described as "Nature's Disinfectant." It is supplied to large numbers of public institutions in Great Britain and abroad, and has gained high honours at nearly all the recent exhibitions. A disinfectant for universal use should, it has been pointed out, answer to three main and important requirements :—"(1) It should not be dangerous if by any chance it should be taken internally, and we know that in the case of carbolic acid, for instance, fatal accidents from its use are of constant occurrence. (2) It should not be destructive of any substances to which it is applied, as such a quality would necessarily limit its action, and it could not be used as noted above to saturate sheets and cut off infection. (3) It ought not to be offensive; for even postulating the efficacy of an evil-smelling disinfectant, it is never likely to become popular, and it is to the general, we might almost say universal, use of disinfectants that we must look for any permanent mitigation of the evil exhalations that so often pollute the atmosphere, and which almost invariably carry with them the germs of disease." To all these descriptions "Sanitas" answers absolutely. At this stand are exhibited the Sanitas Disinfecting Fumigator, an appliance for generating the vapour of Sanitas Disinfecting Oil, which is the essential element in all these preparations; Sanitas Fluid for sprinkling on the floors of infected apartments; Sanitas Disinfecting Soap (hard, soft, brown Windsor, and toilet), and soap powder for toilet and washing purposes; Sanitas Disinfecting Powder and Disinfecting Emulsion for closets, dust-bins, and drains; and Sanitas Disinfecting Furniture Cream. In addition to these there are Sanitas Fluid for the bath-water; Sanitas Toilet Fluid, a most agreeable mouth-wash; and Sanitas Tooth Powder, another very pleasant article of the toilet. It will be seen that the Sanitas Company provide a ready and pleasant means of carrying out the work of disinfection to its fullest extent.

Messrs. A. Boake & Co., Stratford (543), are the manufacturers of disinfecting, deodorising, and antiseptic preparations, invented by Prof. Tuson, F.I.C., of the Chemical Laboratory, Royal Veterinary College, Camden Town. The liquid is a solution of one of the most powerful non-volatile disinfectants, impregnated with the best gaseous disinfectant. The powder when exposed to the air, but more rapidly when damped with water, or when applied to litter, manure, or other moist substances, evolves the same gaseous disinfectant as the liquid. It is claimed that both preparations fix ammonia, prevent putrefaction and the spread of infectious diseases, destroy (not merely mask) bad smells, and leave no smell of their own. When diluted for use they do not stain or in any other way injure undyed silk, woollen, linen, or cotton goods.

Jeyes' Sanitary Compound Company (Limited), 43, Cannon-street, E.C. (553), are also well-known makers of disinfecting preparations which are manufactured in every

The ASSOCIATION FOR THE SUPPLY OF PURE VACCINE LYMPH, formed 1877, 3, Hemmings-row, St. Martin's-lane, London, W.C.; near Charing-cross Telegraph Office, 448, West Strand, W.C. Sole agents for Dr. WARLOMONT'S Calf Vaccine.—[ADVT.]

variety of form, and for every household and toilet purpose. Besides their purifying powers, these compounds are, as almost everybody is aware, valuable in a medicinal sense, and numerous testimonials testify to their efficiency as a gargle, and in cases of scalds, burns, diphtheria, ulcers, cancer, &c.

"Chlorozone" is another powerful disinfectant, and, is it is claimed, the only one which at once contains nascent oxygen and pure "chlorine gas," as fixed in the fuel. An historical value attaches to a testimonial as to the efficiency of this article, given by the foreman of the Tichborne Jury. It is exhibited here (557) by the Chlorozone Company, Albert Embankment, Lambeth, S.E. The makers of disinfectants who have stands in this class are almost innumerable. Amongst them are Messrs. Mackey, Mackey, & Co., Bouverie-street, E.C. (559), with an antiseptic called, Oxychlorogene; The New Carbolic Sanitary Company (Limited), Hackney Downs, E. (563), the manufacturers of the Government Pink Carbolic Powder; Mr. J. R. Meihe, 15, Abchurch-lane, E.C. (564), who shows Anti-microbe, an "instantaneous hygienic, antiseptic, and inodorous disinfectant"; and Messrs. J. Doughty & Co., 121, Westminster-bridge-road (573), whose Eucalyptozone is prepared by distilling the barks of various pines and cedars.

Mr. J. Wheeler, pharmacist, Ilfracombe, exhibits a preparation called "Pixene," a highly-concentrated fluid, providing for the first time in the history of hygiene the entire group of volatile, air-purifying hydro-carbo of pine-tar, in a condition readily miscible with water, and available for all the numerous and varied sanitary purposes for which the crude product has ever been of acknowledged value. "Pixene" is a powerful deodorizer, and yet extremely pleasant in use. Its antiseptic and disinfecting properties are high, and it forms an agreeable companion to the bath.

We have, in previous pages of Health, spoken in favourable terms of the manufacture of the Sanitary Paper Co., 30, Bury-street, Leadenhall-street, E.C. (560). This manufacture consists of rolls of pure paper, adapted for the boudoir, dressing-room, and the lavatory. The rolls are 5 inches wide and 500 feet long, and are placed in an ornamental holder which fixes to the wall. The paper is not perforated, and any length can be instantly detached by means of the patent cutter attached to each holder. It is pretty well known by this time that the use of any sort of paper which may be at hand is open to many serious objections of a sanitary nature, to say nothing of the nuisance which is caused by the blocking-up of the drains. The paper manufactured by this company is made from pure cellulose, it is unbleached, and it is absolutely free from chemical admixtures. Visitors to the Exhibition would do well to inquire for this stall, and to see for themselves the exhibit of this company.

THE SANITARY AND INSANITARY HOUSES.

Before proceeding to the next class in this Exhibition it may, perhaps, not be out of place to say a few words on the two houses—one with all its sanitary defects exposed; the other, with those defects easily and cheaply remedied—which have been erected in the grounds, under the supervision of the Executive Council, and which have only recently been opened to the public. Visitors to the Exhibition may now see, in the clearest possible manner, exactly how it is that drinking water is contaminated, the air of the apartments polluted with sewer gas; how walls are made and kept damp; how fresh air and light are excluded; and how almost every species of household convenience, from dustbins to watersponts, is made a danger to health. The Sanitary House is an exact counterpart of the Insanitary, the sole difference being that by simple inexpensive arrangements, by regard for the most elementary principles of hygienic science, the former would be comfortable and wholesome, while the latter remains stuffy, close, unwholesome, malarious, and perhaps deadly. It must be borne in mind that this latter is not a building erected merely to show how *not* to build a house, but is a more or less exact counterpart of many houses inhabited, not by the poor and crowded populations of the East-end, but by wealthy and intelligent families in the western quarter of the Metropolis.

The first matter touched upon in these two dwellings is the all-important matter of ventilation, which is only just beginning to be properly understood. In our insanitary dwelling the air is excluded or admitted accidentally. It finds its way in through walls and windows as best it can, and gets out by the fireplace or the occasionally-opened door. By far the larger portion of the dwellers in civilised communities spend four-fifths—probably as much as nine-tenths—of their lives within houses and workshops that have not been constructed, and are not suited, for "breathing animals" such as we are, whose red-blood particles, coursing unceasingly through the veins, must have fresh oxygen at every breath, or else they waste and deteriorate. In the Sanitary House it is shown that air may be admitted into the room by a deep bead on the window-sill. The lower sash can then be raised an inch or two, and through the space between it and the upper sash a vertical current is thrown into the apartment. This simple, inexpensive contrivance admits of almost universal application. The essential principle of ventilation is that the current is thrown upwards, not laterally. If any reasonable care is exercised there need be no draught. In the model house gas is always burnt inside a chimney leading direct to the open air. Many years ago, Dr. Parkes declared that to burn gas in a dwelling or workroom, otherwise than beneath a flue to carry off the products of combustion, was a barbarism. It is a barbarism still unhappily patronised by a highly-civilised society. A simple average gas-burner in a room vitiates the air chemically as much as eight or ten persons. There is not as much organic impurity, but chemically the air of an apartment with a three-light gas-burner is as unfit for breathing purposes as it would be with twenty to thirty people within it. Here at South Kensington all is altered. The simple contrivance of a chimney over the burner not only carries off the carbonic acid gas—and it may be the carburetted or even sulphuretted hydrogen—but actually helps the general ventilation by setting up a steady current through the chimney. Unfortunately the trials made at public buildings with the so-called sun-lights are often of defective efficiency, sufficient care not being taken to secure the absolute exclusion of the used-up gas from the surrounding air; but when this is really done gas so burnt is a sanitary agent. Several models of inlets and outlets for air are exhibited. Their success depends on the one general principle that inlet currents must be vertical, and that outlets should be as high as possible. It has been demonstrated that the stuffiest courts, theatres, and churches may be in great part made fresh and pleasant by energetically carrying out this simple idea—which is only an imitation of nature's own method, the air around us every moment being purified by convection currents mounting upwards; and were it not for this natural law of diffusion the central parts of large towns would be almost uninhabitable. In one apartment of the Sanitary House is an arrangement whereby ventilation and warming are combined. A porcelain stove is exhibited which heats the air as it enters the room, always pouring in from the

exterior in a constant stream, while the open fireplace keeps up the current outwards. With one-fifth the fuel now used it would be possible in the coldest season to keep our dwellings at an agreeable temperature, by adopting this obviously rational principle of warming the atmosphere as it enters, instead of blazing away our coal to make the air intensely hot as it rushes out of the chimney.

Even more neglected, probably, has been the question of the ventilation of drain-sewers and soil-pipes. In our notices of this exhibition, we have repeatedly called attention to specimens of bad workmanship on view at the stands of several of the high-class plumbing firms—workmanship so bad as to preclude the possibility, not only of ventilation (except the ventilation from the sewer into the interior of the house), but even of a clear passage through the pipes to the main drains. The misery, the illness, and the social waste which have been endured from this cause cannot be over-estimated. It has been and, to a large extent still is, the fashion to rely for safety against sewer-gas by imprisoning it. In most houses, baths, closets, lavatories, washstands, sinks are connected directly with some drain or sewer, and the very best that is usually done is to provide that they are trapped. In nine cases out of ten no care is taken to see that the outflow pipe or drain has a free inlet for air to enter, and another, at the highest available point, for air to escape. This being so, what happens? Precisely that which occurred recently in a newly-erected public office. The outflow or soil-pipe becomes charged with foul elements, in time a defect arises in the trapping—or intercepting—arrangements, the apartments are filled with sewer-gas, and valuable lives are sacrificed to typhoid fever. Illustrations are given of waste water and overflow-pipes emptying into the open air, of pipes having an S-loop or bend in them so as to secure that no flow of foul air shall be returned into the room—easy precautions of infinite value to health, the neglect of which leads to typhoid, scarlet fever, diphtheria, whooping-cough, and other forms of specific disease, besides an incalculable amount of general malaria lowering the standard of life. Drains, sewers, and soil-pipes are nurseries of the germs of disease; we render them mostly innocuous by letting the air freely into them, and so oxydising their contents, by allowing the products of decomposition free escape into the ocean of fresh air; and, having done this, by taking care that in every outlet from our houses there shall be permanently an intercepting body of water, excluding not only foul smells, but even a trace of sewer-gas, however infinitesimal. It is the great merit of the Sanitary House that it exhibits these principles in action in their simplest forms.

The next point in which a comparison is made in our dwellings is in the matter of water supply. In the Insanitary House, the same cistern supplies the water-closet and the tap over the scullery sink, and the overflow pipe discharges directly into the drain. This is the state of things in thousands of old houses in the Metropolis, and it is to be hoped that people will appreciate the importance of the matter when they see these defects exposed in all their nakedness, and when they turn to the sanitary model dwelling and notice how carefully provision is made for supplying water-closets from separate cisterns, how thoroughly the tank from which the whole house supply is drawn is removed from even a suspicion of connection with the drains, and how scrupulous the builders have been to place this cistern in a cool, airy place, where it can be easily got at and readily cleansed. Finally, in these houses, the question of wall-covering is treated. The Insanitary House is papered with hangings which, though attractive to the sight, are hygienic mistakes of the very first order, giving off, as they do, a constant stream of poison. It is satisfactory, however, to know that if people will have wall-papers (though probably the best thing would be to do without them altogether), they may be obtained in a most innocuous form, free from any suspicion of arsenical colouring, and yet to the full as tasteful in design and execution as the old-fashioned distributors of poisonous particles. These manufactures will call for particular observation as we proceed with this series of notices. Meanwhile, it is to be hoped we have said enough to prove that of all the instructive sights in the Health Exhibition, by no means the least are the newly-opened Sanitary and Insanitary Dwelling-houses.

MEDICAL HINTS GRATIS.

When you go for the doctor, always pull the bell violently, using both hands, if necessary. Do not wait a reasonable time for an answer, but pull again and again in quick succession, interposing, by way of punctuation, an occasional kick at the door with your heel. Such procedure is calculated to make the doctor receive you an in amiable manner. If after midnight, do not consider that the doctor is in bed, but sleeps standing behind the hall door; so no time may be allowed for throwing on even the slightest clothing. When he comes to the door or window—which is determined by the amount of sonorous vibration you make, for the doctor, though not a coward, is a cautious man—always begin the interview with an oath in which some deity, heathen or otherwise, is invoked, interpolating a couple of spasmodic gasps, and finish with "Hurry up!" which may be repeated any number of times; the oftener the better. This tends to increase the doctor's amiability, accelerates his dressing, and helps to compose his mind, so that he may the more calmly deal with this particular emergency.

Should the doctor come to the door in his nightshirt and slippers, repeat the oath and other little embellishments, and tell him to run on, as he is not to mind his clothes—that you will carry them. This little act of kindness will please him immensely, and will be most fully appreciated during the winter months, more especially if a blizzard be on, or the thermometer be in the forties. Be careful not to tell him anything of the nature of the case on which you summon him, or he may take something to relieve it. Don't hint at your name or where you live; that might be fatal. If you send him, expect him to run all the way, especially if it be only a mile or two. Should it rain, do not give him half of your umbrella, or, if you affect to do so, mind and let it drip on him. A slight irrigation down his spine cannot fail to be appreciated.

Never send or bring a carriage for him—doctors are not used to indulgences—but should you by mistake do so, do not fail to occupy two-thirds of the seat, and like quantity of the apron or buffalo. Talk to him on any subject but the one which is the object of his visit, and expect his answers to be cheerful and gay.

If the call is particularly urgent, more especially if at night, say that the patient has been ill for a week or two; that they could not put off sending for him any longer lest the neighbours might talk. This will excite his sympathy and admiration. Be careful to have several silly old women about, who will try which will make the most wise suggestions, and will cite similar cases which, with care, in their hands never failed.

This will be edifying to the doctor and save him the the trouble of thinking, for which he will feel grateful. If the case be surgical—"a fractured leg," for instance—some bystander must not omit to declare that the limb is not fractured at all, because the patient can move his toes, or

tell him that the bone will not begin to knit until the ninth day, or some equally novel piece of valuable information. If the case be a medical one, state aloud—so that both patient and friends may be inspired with hope and comforted by the intelligence—that the patient will surely die at midnight, for you heard the death clock in the wall at that hour the night before. Tell him that the best time to give the medicine is in the wane of the moon; or that you consider the dose prescribed too large, and think it best to give only half the quantity, and a few more equally sage and complimentary suggestions, which add greatly to his store of knowledge and good temper, while it ensures you a high place in his affections and esteem, and at the same time tends to make him an amiable and tender-hearted old man. When you think the illness a dangerous one, tell him to call often—not to spare anything, particularly himself. This may be spoken with increased vigour when you have not the remotest idea of paying him. If you do think of paying him—a very strange occurrence—when you suppose the danger past, ask him if he will have to come again.

> "God and the doctor we alike adore,
> When trouble takes us—not before;
> The danger past, both are alike requited—
> God is forgotten and the doctor slighted."

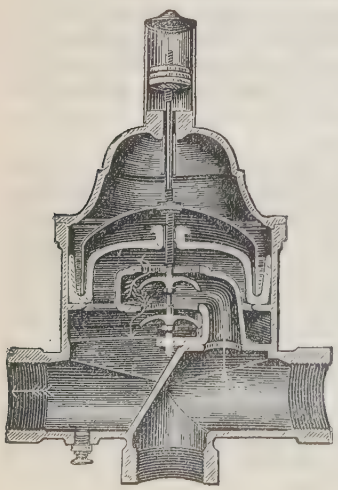
On his first visit you will say: "My dear doctor, I am so glad to see you," or some equally warm greeting, and take care that he is properly shown in and out of the house. When getting better, you will simply call him "Doctor;" when still better, you will be careful to add his surname, and be cold and dignified; the servant need not show him in or out now. Should he call after this, leave word with the servant that you sleep and care not to be disturbed. This behaviour cannot fail to be appreciated by his sensitive nature, and cause him to exclaim, "There is nothing so beautiful as gratitude and confidence reposed."

> "Three faces wears the doctor: when first sought,
> An angel's; and a god's, the cure half wrought;
> But when, that cure complete, he seeks his fee,
> Satan, vile, looks then less terrible than he."
>
> —*Canada Lancet.*

Organ Music at the International Health Exhibition.—Arrangements have been made for extra recitals on the organ of the Royal Albert Hall in connection with the International Health Exhibition. They will take place daily from 12.0 to 1.0, so as to afford to all who visit the Exhibition an opportunity of hearing this organ. In many cases the country visitors have to leave early, and are thus unable to avail themselves of the usual recitals at 3 and 7 p.m.

Foreign Bodies in the Ear.—Dr. Chisolm, of Baltimore, in a paper read at the Medical Society of Virginia, stated that little bony projections at the outside of the membrana tympani are often taken for foreign bodies, and the attempt to extract them has produced disease and permanent deafness. In proof of this statement, he cited several cases which had come under his own notice. He believes that there are numerous cases of individuals living many years with foreign bodies in the ear without a knowledge of the fact, and he stated that most instances of inflammation of the ear were due more to injudicious attempts at removal than to the presence of the body itself. He had never seen, in all his experience as a specialist, a case of foreign body in the ear, not interfered with by another person, which he was unable to remove by the careful use of a syringe and warm water. In all instances of leguminous or other foreign bodies that increase in size by the absorption of water in the ear, he recommends the filling the meatus with pure alcohol, to produce shrinkage, before using the syringe.

Pavements of Compressed Wood.—The increased favour with which wood-pavements have of late come to be regarded in European cities, has led to the devising of numerous processes that have for their object the preparation of wood for use in pavements. In a process of this kind, on the one hand, of course, strength and durability of the product must be aimed at; on the other, it is necessary that the working expenses be as low as possible. In this connection we note an article in the *Semaine des Constructeurs* on the process of Cyprien Mallet, which is said to fulfil these requirements. The salts of the metals and various other substances having the property of preserving wood from decay, Mallet injects, hot, into the core of pine-trees, an antiseptic fluid, and then compresses the logs about $\frac{1}{10}$ their volume. The antiseptic liquid is composed of copper sulphate, 6 kilos; juice sulphate, 6 kilos; sodium chloride, 3 kilos, which are dissolved by boiling in 35 litres of water containing no lime salts. Without interrupting the boiling, there is added then, resin oil, 40 kilos; heavy oil, 40 kilos; suet, 10 kilos. This solution is concentrated to a certain degree over a moderate fire. Ten litres of this liquid mixed with ninety litres of boiling water is the fluid used. The wood charged with this preparation becomes very hard, yet it retains sufficient elasticity; it is not affected by the weather. In Paris the cost of a pavement of this kind comes to about four dols. per square mètre.



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Sanitary Institute of Great Britain, Newcastle, 1882. The Only Medal.
Sanitary Institute of Great Britain, Glasgow, 1883. Star Certificate. This Certificate is the Highest Award, and only obtainable by those who already hold the Medal of the Institute.
National Health Society's Exhibition, London, 1883. Silver Medal.
International Food Exhibition, London, 1881, Silver Medal. 1882, ditto.

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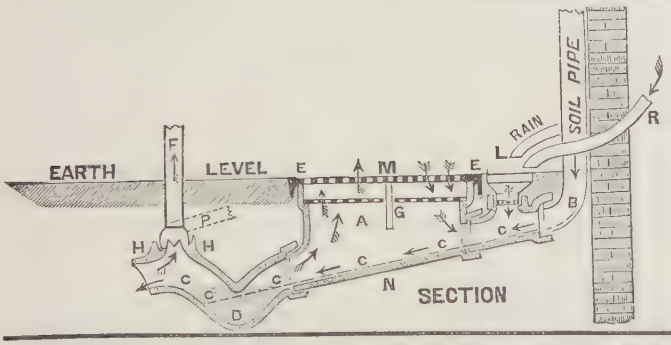

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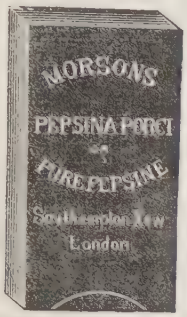
Containing full and descriptive Reports of the International Health Exhibition.

No. 18.] FRIDAY, SEPTEMBER 5, 1884. [*Gratis with* "HEALTH."



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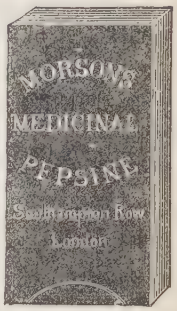

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"International Health Exhibition" Supplement to

HEALTH

A Weekly Journal of Domestic and Sanitary Science.

EDITED BY DR. ANDREW WILSON, F.R.S.E.

"Reason's whole pleasure—all the joys of sense—
Lie in three words, HEALTH, PEACE, and COMPETENCE."—*Pope.*

No. 18. FRIDAY, SEPTEMBER 5, 1884. [*Gratis with* "HEALTH."

THE INTERNATIONAL HEALTH EXHIBITION.

EIGHTEENTH NOTICE.

CLASS XXIV.—(Grates, Stoves, Kitcheners, Ranges, Boilers, &c., for domestic use. Apparatus for heating and warming, smoke abatement, &c.)—This is one of the most numerous classes in the Exhibition, and has to do with a subject which is annually discussed in the metropolis with the approach of winter, viz., the abatement of the smoke nuisance, the economical cooking of food, and the best and cheapest method of warming dwelling-houses. It is mainly in these aspects that we intend to treat of the exhibits in this class, leaving the question of the exterior workmanship and the artistic finish of the many beautiful stoves, &c., shown in this section to be considered by those of our contemporaries who are more directly interested in those matters. The first stand (576) is occupied by Messrs. Barnard, Bishop, & Barnards, Norfolk Iron Works, Norwich, and 91-5, Queen Victoria-street, E.C., makers of all descriptions of stoves, grates, and kitcheners. Their newest article is the "Congleton" grate, an entirely novel form of fire-basket, which has been invented with a view of economising fuel and giving forth a maximum of heat. The shape of the basket, which can be fitted to all the slow combustion stoves manufactured by the firm, shows that every particle of the fuel is employed to the greatest possible advantage. A bright fire is obtained not only at the front but at the sides, which, being made of fire-brick, are utilised as radiators of heat. The "baffle," which is placed at the top of the stove, tends to check the carbonic products arising from the fire, and allows them to be consumed before reaching the chimney. Another very good grate exhibited by the firm is called the "Glow." The great object sought for in the design of this stove is the perfect consumption of smoke, which is achieved without the aid of any machinery, the action of smoke-consumption commencing when the fire-bricks become, and continuing so long as they remain, warm. The arrangement consists of a combustion chamber being formed by the fire-brick back and sides of stove, and by the "baffle," which is also of fire-brick. Into this combustion chamber a jet of hot air is continuously discharged from the air-chamber at the back of stove. This hot air, mixing with the carbon, naturally produces gas, which must ascend in front of the fire-brick "baffle," and which not only effectually destroys all the deleterious products of combustion, but at the same time is utilised as a heat producer, for the gas which is formed in this chamber must of necessity pass in front of the fire-brick "baffle" before it eventually escapes up the chimney. In these grates, therefore, not only does the fuel do, as it were, double work—first in producing more than the usual heat from an ordinary fire, and secondly in producing a quantity of gas (the heat radiated from which materially assists in warming the room)—but it has the still further advantage of being very slow in combustion, and it has been ascertained that from 21 to 28 lb. of coal of the commonest quality will suffice to warm a room of fair size (say 16 ft. by 16 ft. by 10 ft.) for twelve hours. Taking coals at 20s. per ton, this would mean an outlay of 3d. or less per day for fuel. Another form of grate exhibited by Messrs. Barnard is known as "Dr. Bartlet's patent." It is constructed on the same principle as the firm's slow combustion stoves, but has front bars in place of the usual horizontal ones. These bars are so arranged, both between the bars themselves, and also between the bars and the back and sides of fire-basket, that as the fuel descends it falls into freer space, by which means the fire is caused to keep alive, burning for a very considerable time without attention. Perfect combustion is ensured by the shape of the fire-basket, it being very shallow from front to back, so that all the living fuel presents its face to the bars of the grate, and the heat is all discharged into the room in place of up the chimney. The firm also show a number of cooking ranges, chief amongst them being a very compact and neat kitchener about eighteen inches wide, with an oven, hot plate, and boiler, which is supplied for the modest sum of thirty shillings. Messrs. Barnard's other exhibits include several handsome open grates for the purpose of burning wood, &c. These are also constructed upon the slow combustion principle, but it is not claimed for them that they meet the smoke abatement question. They are more intended for country houses, where the consumption of smoke is not considered an important object.

Messrs. Yates, Haywood, & Co., and the Rotherham Foundry Co., Limited, 95, Upper Thames-street, E.C. (579), have a selection of ventilating air and slow combustion stoves, known as the "Rotherham." They are supplied with two bottoms, an iron and a brick one. When the latter is used the combustion is slow; when the former alone is utilised a rapid draught and quick consumption of fuel is the result. The ventilating stoves have an air inlet communicating with the outside wall either directly or by means of pipes, the air is drawn to the back of the grate, and instead of being immediately released is conducted by means of gills up and down the air chambers, until it becomes thoroughly heated, when it may be discharged into the room in which the fire is burning, or into any other apartment with which the flue is connected. The firm also exhibit some cast-iron over-mantles made in very tasteful designs. It is claimed for them that they are indestructible, non-absorbent, and uninflammable, that they will not crack or burn, and that they are easily fixed.

Messrs. Herring & Son, Chertsey (582), are makers of large and improved kitcheners for mansions and public institutions, as well as of domestic stoves. These latter

The ASSOCIATION FOR THE SUPPLY OF PURE VACCINE LYMPH, formed 1877, 3, Hemmings-row, St. Martin's-lane, London, W.C.; near Charing-cross Telegraph Office, 448, West Strand, W.C. Sole agents for Dr. WARLOMONT'S Calf Vaccine.—[ADVT.]

are neat in design, moderate in price, and have many points of excellence. All their parts are movable, and easily renewed; the form and solidity of the fireclay-bricks present many advantages over the ordinary grate; the emission of smoke is reduced to a minimum, the back draught forming a current of air over and on to the top of the fire giving a bright and cheerful combustion, burning the smoke and heating the fireclay back to a great degree; the movable wearing fireclay back affords the advantage of adjusting the depth of the fire at pleasure, and can be renewed at a trifling cost; and the stoves can be made to consume the fuel very slowly by substituting a metal plate in place of the air bottom.

Fresh warm air-grates of an improved pattern are exhibited (587) by Messrs. Alexander Boyd & Son, 105, New Bond-street, W. The air is received from outside through a wall-grating, and the incoming air, warmed by contact with the gills and other parts, is emitted into the room above the fire itself; the opening through which the air passes being controlled by a valve. These grates will often cure a smoky chimney in the same way that opening a window acts, and without the evils of a cold draught, and means are provided by which the vitiated air can be removed from the rooms in which these grates are fixed at the ceiling level. Another advantage possessed by these stoves is that they act as inlet ventilations, whether the fire is alight or not. Messrs. Boyd also show a tiled pedestal stove, which radiates a great heat, and is fitted with a brass rail all round for airing clothes, &c.

Messrs. Walter Neilson & Co., Park Foundry, Glasgow, who received the only medal awarded at the Exhibition of the Sanitary Institute for open and close ranges for their "Sine Qua Non" kitchener, exhibit it here (598). It is easily set, extremely simple in action, and may be converted from an open to a close range by one setting. Several other ranges, notably the "Industrial" and the "Housewife"—the latter a very strong, handy, and compact cooking-stove—are shown by Messrs. Neilson in full operation.

Mr. Henry Thompson, 29, Marquis-road, Canonbury (601), is the inventor of a domestic perfect combustion stove which seems admirably adapted to settle the great smoke question in a simple and inexpensive fashion. Externally it resembles the ordinary register stove, but in its internal construction it widely differs from it. A recess at the back of the Thompson stove is filled with coal at starting, and behind the coal is a vertical hinged plate, which is so arranged as always to exert a gentle pressure on the coal and the body of the fire, tending to push both forward toward the bars. A slight stirring of the fire causes it to be loosened, and the fuel to be pressed forward to the front to replenish the fire. When the coal has been consumed, the vertical plate is pushed back and a fresh charge of coal inserted. It will thus be seen that the coal at the back is undergoing a process of coking before being pushed forward. The gases evolved from it, instead of passing up the chimney and into the air in the form of solid carbon, are carried downwards by the draught produced by an ingenious but simple arrangement at the back of the stove, and are delivered beneath the grate. At this point they are drawn upwards through the incandescent fire, in which every particle of smoke is consumed. The waste products of combustion pass up the chimney in the usual way, but without the usual attendant results of smoke and soot.

The Wilson Engineering Company (Limited), 227, High Holborn, have a varied and extensive collection of their ranges, kitcheners, &c., in operation at their stand (604). Their well-known "Wilson" range is now manufactured so that it may be adapted to the consumption of wood, charcoal, peat, coke, or anthracite coal, the fire-boxes being enlarged and strengthened according to the nature of the fuel to be used. In principle the range is practically a smoke-consuming one, and very little soot accumulates in the flues, and as they require no building-in they can be set on any part of the floor or in the centre of the kitchen. An air-valve regulates the fire, so that almost all the heat engendered is employed in the range, and but little passes up the chimney, thus rendering a fire in the latter almost, if not entirely, an impossibility. The combustion of the smoke and the noxious gases is ingeniously effected by means of intensely super-heated air. The cold air, in the first place, being admitted through a ventilator in the fire-door, is made to travel through flanged chambers, of which the fire-box itself forms in every case one side. In this passage it is thoroughly heated, and meets the smoke and gases as they leave the fire-box, where the progress of the latter is somewhat arrested by means of a "baffle" plate. At this point the heated air and smoke, &c., mingles, producing almost perfect combustion before travelling round the flues surrounding the ovens and boilers. Another special stove of the firm is an independent conical boiler for heating conservatories, halls, churches, and other public buildings. The firm supply all the cooking requisites for their ranges, and also some special enamelled ware certified by Dr. H. C. Bartlett to be free from lead, arsenic, and other poisonous ingredients of which common enamel is composed.

The question of heating and cooking by gas, instead of coal, is exhaustively and scientifically treated by Messrs. A. J. West & Co., 49, Lisle-street, Leicester-square, who, at their stand (605), have a considerable number of gas cooking-ranges and stoves for simple heating purposes. All the ranges are fitted with the "automatic absolute safety gas-tap," which shuts off the gas when it ceases to burn, thus preventing explosions or the poisoning of the viands whilst they are being cooked. The "Safety" gas-stoves manufactured by this firm are of varying sizes and prices, and at a trifling extra cost are cased with non-conducting material, which effects a saving of about forty per cent. in the consumption of gas. Breakfast-cookers, hot-plate tables, and hot-water apparatus, in all of which gas is the heating power, are shown, as well as some asbestos fires, which have received much attention at the hands of visitors to the Exhibition. Chief among the latter is the "Exhibition" asbestos gas-fire. This stove is compact and neat in appearance; it requires no fixing, and will hang on the bar of any grate; it emits no unpleasant odour; and is as near an approach to the cheering blaze of the old English open fire as can ever be obtained by any similar contrivance. For these reasons, and also because of its very modest price, it deserves to become popular.

Some good gas-stoves are also shown by Messrs. E. Siddaway & Sons, George-street, West Bromwich (617), whose "Paragon" series of stoves embodies all the latest improvements in gas-cooking. The roasters are double cased, and lined with an efficient non-conducting material. The outer casing is galvanised, so that no matter where placed, it is impossible for the stove to be affected by the air; and the top of the oven is of strong cast iron, which will not be corroded by the liquids which may boil over upon it. A gas-boiling stove made by the firm is very powerful in its action, and should boil water as rapidly as it is possible to do so.

The "Hotspur" Smokeless Cooking Range is manufactured by Messrs. Whyte & Bradford, Victoria Foundry, Bo'ness, N.B., and is shown on the next stand (618). The fire-basket of these ranges is in the form of a cylinder, whose circumference consists of a series of gratings, sliding

in a rail at each end. These gratings do not complete its circumference, but leave an opening on top for inserting fuel, and for the exit of the products of combustion. On fresh fuel being inserted, one of the gratings is slipped backward, forming a new opening, the fire-basket is thereby revolved, and the active fire is thus placed above the fresh fuel. The gases as generated must pass through the active fire before reaching the flues, insuring their ignition, instead of a large proportion passing away as smoke and soot, to vitiate the atmosphere, and entailing the loss of an enormous amount of heating power, as is the case with ranges in ordinary use. By thus revolving the fire, the brightest and hottest surface is always in close contact with the hot-plate and flues, instead of being temporarily choked and rendered ineffective, when fired in the usual way; while for roasting in front of the fire, the brightest surface is always available, and an intense heat may be radiated outwards. To insure complete combustion, a spray of air is admitted through the fire-door into a chamber directly over the fire-basket, which, in that form and at that point, mixes readily with the gases rising from the fire, producing a brilliant, smokeless flame, and greatly intensifying the heat. A perforated sliding plate, attached to the fire-door, regulates this air supply to any degree, and, when desired, this plate may be folded down in front of the fire to act as a blower or screen at will. Another special feature of the "Hotspur" is the cooking-ovens, which are large, and to which the heat of the fire may be applied all round by means of a reversible damper, which directs the flame over and under the oven at will. The "Hotspur" requires no building-in, and materially aids in ventilating the kitchen in which it is placed.

The handsomest, and, so far as the radiation of heat is concerned, one of the most effective grates we have yet noticed, is the "Nautilus," exhibited by Mr. James B. Petter, of Yeovil (621). The "Nautilus" is a fire-brick-lined, smoke-consuming dog-stove, in form resembling the nautilus shell—whence its name. In all its various forms the smoke revolves within the centre or axis which forms the top of the grate, before passing off through the exit nozzles into the small flues leading to the chimney. The nozzles may be fixed at either side of the top of the grate, at the back, or at the top, and a register door encloses the chimney immediately over the grate, thus preventing any waste of heat. The fire being laid in the curve of the shell, so to speak, naturally gives out a great heat, and by a recent patent the ashes fall through the bottom of the grate into an enclosed pen. The grate is on wheels, so that in the summer it may be drawn away to allow of the floral decoration of the recess. The "Nautilus" grate, however, at this exhibition is placed in a fireplace formed of beautifully painted tiles, and has a most pleasing and cleanly appearance. The same shape of grate is retained in the "Nautilus" for gas fires, the interior being lined with corrugated polished copper, from which heat is reflected as well as radiated from the interior case.

Mr. T. J. Constantine, 61, Fleet-street, whose "Treasure" stoves are becoming increasingly popular, is also an exhibitor in this class (624). These ranges are especially designed for economising fuel, and are made to suit every description of household. The old-fashioned "Treasure" ranges have a closed fire-place, but recognising the sentimental objections to their lack of a cheerful companionable glow, Mr. Constantine has perfected an "Open-fire Treasure Cooking Range," which combines the advantages of an open fire with all those for which the closed "Treasure" ranges have been noted. The ovens have a larger internal capacity than any others, in comparison to the external measurement, and the flames are made to deflect all round the ovens, the temperature of which is equal throughout, whilst they are so thoroughly ventilated that a variety of joints and dishes can be cooked perfectly in one oven. The temperature of the fire is under perfect control by means of a movable door or flap, which is adjusted and worked by a lever in front of the range. This flap, when open, gives a good up-draught for lighting, and is a great assistance for drawing up the fire quickly after it has been kindled, or whenever the fire is replenished through being allowed to get low. When the flap is closed, the heat is equally and quickly distributed throughout the oven, and the oven is at once in a condition for cooking purposes. The open-fire ranges are similar in price to the old-fashioned makes. Amongst the culinary utensils exhibited by Mr. Constantine the "Treasure Cooking Pot" may be recommended for its simplicity, economy, and effectiveness.

Amongst the firms who have succeeded in turning the recent movement in favour of cooking and heating by gas to the best account, Messrs. H. & C. Davis & Co., of 200, Camberwell-road, have taken a leading place. They show here (628) their "Metropolitan" series of ventilated family gas kitcheners, which are double cased and entirely surrounded with an effective non-conductor. In the No. 10 size, a 10 lb. joint may be roasted with a loss of only 1 lb. in weight, with a consumption of but 18 ft. of gas, at a cost of three farthings; and, being fitted with a ventilating valve, meat may be roasted without any possibility of the odour of the gas being apparent. Messrs. Davis also make some very handy bedroom stoves, which are easily fixed to the fireplace, and which afford means for rapidly heating water and other liquids. Some of their stoves for heating halls, churches, &c., are so absolutely free from smell that in a well-ventilated room they may be used without inlet or outlet flues.

Hot-water heating is illustrated by Mr. James Keith, of London, Edinburgh, and Arbroath, who exhibits (629) his "Challenge" boilers, constructed of sections placed one above another, and standing complete in themselves, requiring no brick-setting or building work around them. The dairies in this Exhibition are supplied with hot water by this process. Another system of water-heating, on a smaller scale, suitable for bath-rooms, &c., is shown on an adjoining stand (630) by Mr. C. D. Yates, the Victory Water-Heating Co., Tunstall-road, Brixton. The advantages of the "Victory" consist in the short space of time necessary to boil water, which, on entering into the apparatus, passes through a succession of plates heated by gas, oil, or fuel.

Of Messrs. Brown & Green's kitcheners we spoke (Supplement, No. 7) when describing their model kitchen in Class XX. This firm exhibit in this class (631) also. Their kitcheners and stoves, it will be remembered, are all made on the "under feed" principle, by which the smoke is consumed and the most economical consumption of fuel is brought about.

Messrs. W. & S. Deards, Harlow, Essex (633), are makers of the "Princess Louise" coil grate for warming and heating halls, staircases, passages, and spare rooms from ordinary grates. The coil-pipes are arranged to form the bars of an ordinary grate, and are filled with water, which, as soon as the fire is lighted, becomes warm. These pipes, being continued round the back of the grate and into the adjacent apartments, at once transmit the heat to those rooms. This simple and inexpensive method of heating ought to be largely used in rooms which are too extensive to be warmed by one fireplace. For instance, the heating of schoolrooms by means of hot water is often objected to by scientific men, doctors, and architects, as by doing away with the open, cheerful fire, and the chimney shaft, the

cheerfulness of the room is destroyed; and the "lungs of the schoolroom," the ventilation by the chimney shaft, is also absolutely lost. But by the adoption of this coil grate the cheerful, open fire is retained, the chimney still acts as the ventilator to carry off all foul air, and the furthermost parts of the schoolroom are as equally warmed by the circulation of hot water as in the immediate vicinity of the fire.

DISINFECTION OF POLLUTED SOIL.

Disinfection is the destruction of the specific poisons of contagious or infectious diseases. The causes of these diseases are now believed to be minute living particles of matter; some of them are known to be minute vegetable organisms or microphytes, which can live and multiply either within or without the living body; the nature of others is totally unknown, except that we can say with a good deal of certainty that they cannot be gases or liquids. Being extremely minute and easily carried about by currents of air or water, from which last it is very difficult to insure their removal by ordinary filtration, it would seem evident that the first principle of disinfection is to attack these poisons or germs at their origin as far as possible, and before they are scattered.

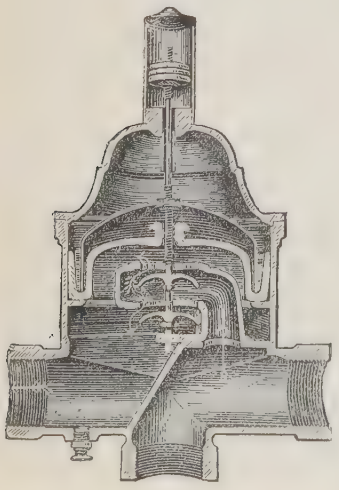
The best place to apply disinfectants in scarlet fever, for example, is to the skin of the patient, and to the discharges from his throat, nose, bowels, and kidneys, because it is in the excretions and *débris* from these sources that the poison is most apt to be contained. The second principle is to keep the surfaces or substances which are to be disinfected moist until the process has been accomplished, or, in case they have become dry, to moisten them before moving them, in order to avoid the production of dust and the scattering of the minute dangerous particles. We do not propose to discuss the merits of various disinfectants, taking it for granted that the uses of heat, bichloride of mercury, salts of zinc and iron, chlorine and sulphurous acid, &c., are sufficiently well known to our readers. The special point which we wish now to consider is the so-called disinfection of soil polluted by organic matters, as by a leaky cesspool or house-drain. When, in the progress of human events and of civilisation in that particular locality, a leaky drain beneath a house is discovered, and the owner has made up his mind to replace it with a sound one properly laid, or when the ancient family cesspool or privy-vault is to be abolished, the question comes up, What is to be done with the dark, offensive earth in the vicinity of the old pipe or pit? and it will often seem as if the cheapest and easiest course was to disinfect it—to saturate it with a solution of copperas, for example.

Bearing in mind the definition given above, it will be seen that disinfection is hardly the proper term to use in many such cases, since there is no particular reason to suppose that any germs of specific disease are present, although there is a great abundance of the ordinary micro-organisms of putrefaction. What is wanted, if this foul earth is to be allowed to remain, is something that will not only put a stop to the putrefactive process, but render the mass permanently incapable of furnishing the conditions of growth and development to germs; in other words, an antiseptic rather than a disinfectant. But to make a mass of polluted earth permanently antiseptic is a very difficult matter, so difficult that it is much wiser and cheaper to dig it up and carry it away, replacing it with clean, fresh earth, and this is the course of action which we would strongly recommend under such circumstances. Dispose of the foul earth as you would the sewage with which it is contaminated. After all, there is but little difference between them, and do not leave the work half done. Dry, clean earth is the best deodorant, disinfectant, and antiseptic under such circumstances, and in almost every case it is much the most economical. To what extent micro-organisms escape into the air from polluted soil is somewhat uncertain—probably the danger from this source is not great—but, at all events, the offensive gases which such soil gives off do escape very readily, and it is certainly worth while to prevent their appearance.—*Sanitary Engineer.*

The directors of the Royal Erfurt State railway have turned one of their saloon-carriages into a carriage for the conveyance of sick persons. The carriage can be used for this purpose on payment of twelve times the first-class fare.

"I tell you, sir," said Dr. —— one morning to the village apothecary, "I tell you, sir, the *vox populi* should not—must not be regarded." "What, doctor!" exclaimed the apothecary, rubbing his hands. "You don't say that's broken out in town, too, has it? Lord help us! what unhealthy times these are!"

To remove silver stains from clothing, immerse the stained fabric for a few minutes in a concentrated solution of chloride of copper, then rub with a crystal of sodium hyposulphite, previously dipped into ammonia which has been diluted with an equal bulk of water. If the chloride of copper solution is quite neutral, the colour of the fabric will not be affected.



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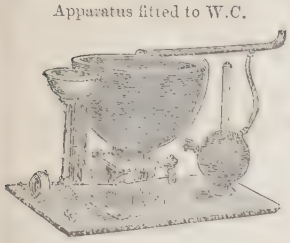

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TESTIMONIAL.

From EDWARD C. ANDERSON, M.D., M.A., Cantab.,
Tom Law, Darlington, November 5th, 1880.

To Messrs. Krohne & Sesemann.

Gentlemen,—I have the greatest pleasure in acceding to your request that I should, from my experience of the Martin's Bandages, testify respecting their excellence.

My knowledge of the quality of Bandages of English make is limited; for, having, about fifteen months back, applied bandages sent to me from this source, and noting the evident irritation and discomfort produced by them—so great, indeed, that each patient soon discontinued their application—I ceased to recommend and use them.

In April of this year, I for the first time used the original Martin's Bandage, and since then I have applied them and none else to the limbs of nearly twenty persons suffering from a variety of complaints, such as ulcers of the leg of old standing, which had resisted all treatment for more than fifteen years; varicosities (the unsound leg of one patient, a man, measured 25 inches round the calf, against 16½ inches, the size of the sound leg; and his condition was such that, before coming under my care, it had been by his former attendant seriously debated whether or not the leg should be amputated to save life. This man goes about wearing a 21-foot Bandage, and the calf of the unsound leg now measures 18 inches); erysipelas, œdema, rachitis, &c.

Suffice it that all, both young and old, have been enabled to wear them with comfort; most of the cases under treatment have been cured, all benefited, and many although well, continue to wear them on account of their safety and the support they give rise to.

I may appear to have said too much in their favour. I can assure you that my feeling is that I have said too little. The great success attending their use evidently arises from the excellent purity, smoothness, impermeability, and non-irritating nature of the Indiarubber of which each Bandage is composed.—I am, &c.

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CAUTION TO THE TRADE.—The Sole Agents for the Genuine Martin's Bandages request the Trade to compare their Prices with those commonly charged for worthless imitations, which are advertised as "Recommended by Dr. Martin," or as "Suggested by Dr. Martin," which is misleading, the vendors having not the shadow of a title to use Dr. Martin's name in connection with their bandages Each GENUINE bandage stamped with Dr. H. A. Martin's signature is warranted to be perfect in every respect, and to wear well.

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For other sizes see complete Price List, also Dr. H. A. Martin's PAMPHLET, describing Method of Treatment, which are sent Post Free, on application to the Sole Agents,

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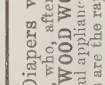

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IN the construction of these Diapers we have acted upon the suggestions of an eminent London Obstetric Physician, who, after repeated trials of them among his patients, now pronounces HARTMANN'S HYGIENIC WOOD WOOL DIAPERS perfect in material and form, and the most convenient, comfortable, and healthful appliance ever provided for this special purpose.

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The following are a few of the many advantages which the material employed in the manufacture of HARTMANN'S HYGIENIC WOOD WOOL DIAPERS possesses over any other known substance, and especially over common absorbent cotton wool.

1. Hartmann's Patented Wood Wool has an enormous capacity of absorption, so that as a rule the use of one of HARTMANN'S HYGIENIC WOOD WOOL DIAPERS will be found equal for all practical purposes to many of the ordinary or any other kind.

2. All disagreeable odours, and the decomposition of the secretions, are entirely and effectually prevented, owing to the antiseptic properties of the material.

3. The Diaper is very light, and will always remain flexible and soft, an important advantage over the ordinary Diaper, which is necessarily heavy, hot, and liable to chafe the skin during its use, all of which disadvantages are entirely avoided in using HARTMANN'S HYGIENIC WOOD WOOL DIAPERS.

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5. The moderate price at which they are sold, bringing them within the reach of everyone, will allow their destruction after use, by simply burning them, a fact which, from a sanitary and economical point of view, as washing is dispensed with, is of the utmost importance.

N.B.—The burning of the Diaper can be effected at any convenient time. The antiseptic properties of the material will prevent any smell whatsoever while being kept after use, until convenient to be burned. The latter process is also entirely unattended by any smell of any kind.

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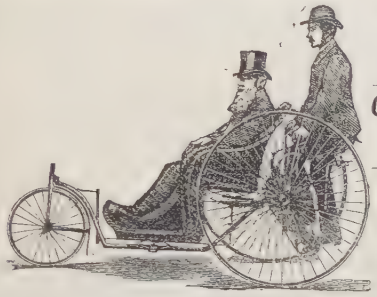

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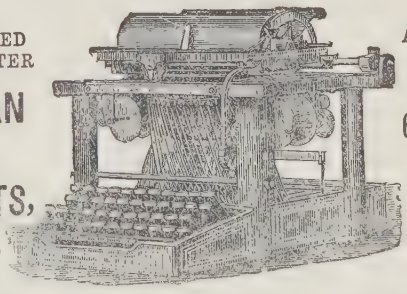

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See "Health," Aug. 22, 1884.—Page 316.

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Lie in three words, HEALTH, PEACE, and COMPETENCE."—*Pope.*

No. 19. FRIDAY, SEPTEMBER 12, 1884. [*Gratis with* "HEALTH."

THE INTERNATIONAL HEALTH EXHIBITION.

NINETEENTH NOTICE.

GROUP III.—THE DWELLING-HOUSE.

CLASS XXIV.—(Grates, Stoves, Kitcheners, Ranges, Boilers, &c., for domestic use. Apparatus for Heating and Warming, Smoke Abatement, &c.) *continued* :—One of the most striking stands in this class is that of the Coalbrookdale Company, Limited, of Coalbrookdale, Shropshire, and Holborn-viaduct, whose artistic castings and ironware generally are well known. They exhibit here (577) a number of grates of various designs, amongst which is the popular "Kyrle" grate for burning anthracite coal. Since its first introduction, this grate has undergone several improvements, and is now undoubtedly the best of its kind in the market, burning not only anthracite coal, but bituminous coal as well,—the latter with the minimum, if not entire absence, of smoke. The latest form of "Kyrle" grate is lined entirely with fire-clay, and, the bottom being solid, the draught is through the front bars by a narrow horizontal opening at the bottom of the fire-brick-bat, along its entire length, into a back flue. Passing upwards, the external air is drawn in over the top of the fire, through another narrow slit between the back brick and a deflector brick fixed above it at an angle. This external air, mixing with the gases arising in the black flue, assists in their combustion, and in burning the gases minimises if not altogether destroys the smoke. The heated gases, before they escape into the chimney, have to pass between two fire-bricks, the lower one of which is the deflector brick we have referred to. Thus the products of combustion pass into the chimney in an ignited gaseous condition, which is demonstrated in the grate in question by a mica screen fixed in front of the cells, giving the appearance of a double fire. It is claimed that there are no extraordinary flues, no dampers, valves, or loose parts to get out of order. All the bricks are fixed from the front, and can be replaced at any time readily. The whole of the fireplace being of fire-brick, and the flues also, the fire and ignited gases, acting upon the bricks, raise them to a high temperature, and they again react by radiating their heat back upon the fire; and as it burns either the ordinary house coal, anthracite coal, or the now unused gas coke, and since nearly the entire smoke of bituminous coal is consumed—and the thorough radiation of heat, which it effects with any fuel—it necessarily yields a much greater heat value for the fuel consumed than the ordinary grate. The "Kyrle" principle is adaptable to any of the modern grates at a trifling extra cost. Recognising the objections to many of the ordinary slow-combustion stoves, that there is a difficulty in getting the fire to burn, and that at best there is but a dull glow emitted from the coals, the Coalbrookdale Company have introduced a "Controlled Combustion" grate, whereby they admit a sufficient modicum of air to assist rather than to force combustion, and provide for the descent of the ashes into a shallow pan below through the tapering apertures in the bottom of the basket, which apertures at the same time permit the ascent of air into the fire to assist the combustion. These apertures are about five-eighths of an inch in diameter at the top, widening out to half an inch at the bottom. The air is drawn into the grate through a number of small perforations in the ash-pan, whence it passes into the fire through the apertures just mentioned, the ashes taking a contrary course and falling into the ash-pan. These improvements can be introduced into any of the firm's "Ironbridge" grates at a trifling cost. The firm also manufacture some useful cooking ranges, two of which deserve special mention. The first is Richard & Barton's "Circular" range, in which the fire-box is angle-shaped. When required for baking, steaming, or boiling, the whole of the heat is concentrated on to the top and sides, but by turning a handle the fire-box is lowered so as to produce a roasting fire of any required size. The second range is called the "Unique," and is the invention of Mr. Jno. Smith, C.E. All its flues are of cast iron, and are very accessible for cleaning; and an iron canopy is placed over the fire, to which is attached a sliding rack to receive various cooking apparatus. The depth of fire can be regulated by raising and lowering the bottom of the grate. The ovens are heated by two gaseous currents, one circulating over the ovens and under the hearth-plate, and another circulating under the ovens, so that the ovens are heated at top and bottom simultaneously from one fire. The principal heating currents are obtained from the formation of coal gas from beneath the coal, and the hot gases are passed direct to the surfaces of the ovens. The smoke from the upper surface of the coal fire is drawn down and passed through the heated medium and consumed, thus economising the fuel and obtaining the greatest heating power: this power is maintained by the comparative absence of sooty coatings on the surface of the ovens. The whole arrangement is cleanly, and the range worked with comparatively little expenditure of fuel.

Messrs. Mappin & Webb, 158 to 162, Oxford-street, exhibit (578) the "Abbotsbury," a new smoke-consuming and slow-combustion grate. The air is driven into the grate from behind, and the sloping fire-brick backs insure a complete radiation of heat into the room. The combustion in these grates is so perfect that ordinary coal is burned to a very fine ash, and most of the smoke is carried through the fire and consumed.

Messrs. Steel & Garland, 45, Holborn-viaduct, E.C., and Wharncliffe Works, Sheffield (581), are the makers of the "Wharncliffe" warm-air and ventilating grate, which adds to attractiveness of appearance the possession of most of the

The ASSOCIATION FOR THE SUPPLY OF PURE VACCINE LYMPH, formed 1877, 3, Hemmings-row, St. Martin's-lane, London, W.C.; near Charing-cross Telegraph Office, 448, West Strand, W.C. Sole agents for Dr. WARLOMONT'S Calf Vaccine.—[ADVT.]

qualities which a healthy fire-grate ought to have. This grate, in its construction, is exactly the reverse of an ordinary register stove; instead of being recessed in the mantel, all the heating-surface stands out prominently in the room. The ornamental canopy forms of itself a complete hot-air chamber, pure cold air being introduced at the back or underneath by a pipe four inches in diameter, which passes up the sides and back through a series of gills, and, having become heated in its passage, proceeds through a perforation at the top of the canopy, imparting a genial and equable glow of fresh, warm air through the apartment. The question of smoke-consumption is also treated successfully by Messrs. Steel & Garland by their "Kensington" grate. This is an underfeeding stove, the coal being placed beneath the burning fuel, and the smoke consumed in its passage to the top of the fire. The distinguishing characteristic of both these grates is their freedom from any mechanical complications, and their consequent inability to get out of order.

Messrs. Rosser & Russell, 22, Charing Cross (599), exhibit their Lonholdt Anthracite Stove, which obtained the highest award at the recent International Exhibition at Frankfort. The stove will burn either anthracite coal or gas coke, and contains a feeding hopper, by which the fuel in the grate is automatically replenished, whilst at the sides and back of the grate are vertical circulation shafts, through which the air of the apartment or pure air from without circulates. The products of combustion are drawn downwards, and circulate around the base of the stove before they can escape into the chimney; this base-burning arrangement and its great circulating and heating power giving to these stoves a great heating capacity. Each stove is provided with a ventilator to regulate the fire at pleasure, and to thoroughly ventilate the rooms, whilst to produce moisture every stove contains a receptacle for water. In the front of the stove plates of talc are inserted, through which the fire can always be seen, thus giving the stove the cheerful appearance of an open fireplace. The firm are also the manufacturers of a neat and compact range which they call the "Perfect." The heat of the oven is regulated by the adjustment of a lever, and the oven is provided with a thermometer indicating the exact temperature. The only flue is that which communicates directly with the chimney, but, notwithstanding this, the makers claim that an equable temperature is maintained on all sides of the oven.

Another very good cooking range is shown (600) by Messrs. J. B. Colbran & Co., 247, High Holborn. It is known as Dow's patent, and is intended to obviate the objections made to the ordinary kitcheners, on the ground of the unpleasant odours which frequently pervade the entire house when cooking operations are in progress. This stove can be used either as an open or close fire, the smoke and the fumes from cooking being alike carried straight up the centre flue. When used as a close fire, the flames are conducted round both the ovens with which the range is fitted.

A somewhat novel, and, we should think, effective, form of hot-water open fire-grate is shown (609) by Messrs. Potter & Sons, 298, Oxford-street. It is the invention of Mr. H. Saxon Snell, and consists of an open fire-grate, surrounded on three sides and on top by a wrought-iron chamber containing water, which when warmed by the fire circulates through upright coils of pipes placed on either side. The hearth is made of iron, and the whole space below the grate and pipes is formed into a chamber for the admission and collection of air from the outside; the outer fresh air thus admitted passes upwards, and impinging against the sides of the hot-water chamber and pipes, becomes thoroughly heated without being burnt before entering the room. The obvious advantage possessed by this grate is that, unlike many other such inventions, the air cannot be burnt or heated above the temperature of boiling water; and the water contained in the vase being slightly warmed it evaporates, and thus keeps the air of the room moist.

The invention of the late Dr. Siemens of a kitchener for burning coke, with or without the assistance of gas, is practically illustrated (615) by Messrs. H. Chappell & Co., 34-61, Fulham-road. This was exhibited at the Smoke Abatement Exhibition at South Kensington, and gained a silver medal and Dr. Siemens' prize of fifty guineas. The arrangement by which a smokeless fire is attained can be applied to any existing kitchener, whatever its construction, without removal, and at a comparatively trifling charge as compared with the cost of a new one. Another point of no less interest is, that the trouble of lighting fires is dispensed with, and the flues never require cleaning, and the sweeping of the chimney needs only to be performed on rare occasions. Added to this, the labour of the cook is in a general way greatly lessened, and the cost of fuel materially reduced, the approximate cost not exceeding sixpence per day. The intense heat of a coke fire is well known, and when gas is added as a supplemental agent, the objections urged against the difficulty of lighting it disappear, while its smokeless characteristics render it an admirable agent in helping to rid the atmosphere of its sooty particles. Wood and paper are entirely dispensed with in lighting the fire; the gas, in a specially-constructed burner, is lit and permeates amongst the coke, quickly producing a bright and clear fire; while the addition of a series of gills raises the surrounding air to such a degree of heat that the coke is burnt in a highly rarefied atmosphere, tending to promote perfect combustion, and to rob it of those sulphurous attributes that are sometimes apparent when burnt under ordinary conditions. When the fire is well alight, the gas is turned off, and is not again required so long as the fire is kept properly fed. Messrs. Chappell also show a number of cooking-stoves, most of them being so made as to dispense with the trouble and expense of setting. They all seem extremely well adapted for the purpose they have in view.

Messrs. F. Edwards & Son, 54, Great Marlborough-street (623), exhibit an economic slow-combustion tile-kitchener which illustrates a somewhat new principle of heating. White tiles are applied to the inside of the fire-place above the hot-plate, and also to the oven doors. The special advantages of tiles consist in their lightness, their cleanliness, and their non-conducting power by which the cooking apparatus is kept cool, and heat is economised, in strong contrast to the old method of using iron, which is dark, dirty, conducts much heat up the chimney, or radiates it into the kitchen. The use of the tiles to the oven doors is particularly advantageous, as the ovens are more uniformly heated, while the heat is economised. The tiles are fixed with brass pins, or in iron frames. In these kitcheners, too, special attention is paid to the ventilation of the ovens, and the recessing of the fire enables the cook to do her work without being endangered and inconvenienced by the proximity of hot coals. The fire-basket is made with a rising bottom, so that the amount of the fire may be increased or diminished at will, and there is a loose ash-plate for stopping the supply of air to the under grating, and a plate to close the front of the fire. By these means the combustion of fuel is rendered so gradual that the fire might be kept in almost continuously at a very small cost.

Mr. Jaffreys, 6, Charing-cross, exhibits (638) a grate which has only been recently introduced to the London market, but which took high honours at the Manchester

Smoke Abatement Exhibition two years ago, and can be used either as an ordinary register, a slow combustion, or a bright glow grate; and, as the whole of its interior is made of fireclay, its radiating power is very considerable. The back of the grate projects forward, the five small bricks in the fire-basket and the bottom (a solid slab) can be taken out, the back, side, and three perforated under bricks can also be removed, and the flue is then laid perfectly bare for cleaning. When lighting the fire a knob at the top of the grate is pulled out, and direct communication with the chimney is afforded, as in an open grate. If, however, a slow-combustion fire is needed, the register is closed. The products of combustion are then collected at the top of the grate under the register, and drawn-down side flues at the back of the fire-clay sides, or cheeks, into a combustion-chamber situated beneath the fire-clay bottom. To this chamber is admitted a copious supply of atmospheric air from perforations at the bottom of the grate. The air, quickly becoming heated, mixes with the gases, and so insures combustion, by burning what little smoke has reached it, the residue being carried underneath again to the lowest portion of the grate and up the back to the chimney. For a bright-glow or quick-combustion fire, the valve in the back flue is opened; this allows the products, after passing through the peculiarly-constructed fire-basket, to pass out of the bottom part of the back by a narrow, horizontal slit or opening, when they are also conveyed to the combustion chamber, and pass away to the chimney by the same route as when the slow-combustion principle is being worked. It will be seen from the above description that Jaffrey's grate differs in many respects from most inventions of the kind. It is, moreover, so simple and effectual in its action that its inventor may reasonably hope to repeat in the metropolis the success he has already achieved with it in the North.

Messrs. Musgrave & Co., of Belfast and 97, New Bond-street (663), are makers of slow-combustion stoves and ventilating air-warmers, the former being improved under no less than five patents. They are designed for the consumption of gas coke, and provide not only for the heating of a large area, but for the thorough ventilation of the apartment in which they are placed. The fire-place is lined with fire-clay, and holds sufficient fuel to last from eight to twenty-four hours, according to size of stove. It is fed through a door on the top, or front, and there is another door in front, which admits the air for combustion, and also allows the ashes to be removed. The ash-box is arranged to admit air to the fire; the door can be held up to remove the ashes, but should not be left so, but set back to its proper place before the attendant leaves it. The object of this arrangement is to prevent too much air being admitted to the fire, and thus avoid quick combustion and overheating. The smoke and heated gases from the fire, instead of escaping direct into the chimney, are first ignited, and afterwards pass through two vacant chambers or secondary stoves, which serve as traps to retard them on their way to the chimney till their heat is abstracted, so that no more is lost than is sufficient to secure a draught, and great economy of heat and fuel is thus effected. There is also a hot-air chamber, through which the cool air of the apartment is constantly passing, until, in course of time, the most distant parts of the room become almost as warm as the spot where the stove is placed. The construction of this hot-air chamber is such that, when the stove is placed over the mouth of a flue or fresh-air duct, communicating with the external air, it draws in an abundant supply of pure, fresh air day and night, which is first warmed and then diffused through the apartment. This system of ventilation, when adopted in a hall, keeps up a supply of fresh, warmed air for the whole house, while during the summer cold air can be introduced through the stove to the building in the same manner. Several other stoves are shown by this firm, all constructed on the same principles, but sold at a cheaper rate, and without the hot-air chambers. On the other hand, larger sizes are manufactured for churches and public buildings, and are fixed in a brick chamber in connection with the apartment to be warmed. In these cases the hot air flues leave the chamber by the roof, and are carried into the building, whilst the cold air from the building and the fresh air from outside is delivered beneath the base of the air-warmer.

A very ingenious appliance is shown (664) by Mr. W. S. Melville, 18, Frederick-place, Bow, for dealing, in a temporary fashion, with the smoke nuisance. It is well known that the most effective means for warming a room, relatively to the quantity of coal consumed per hour, is under-feeding, this arrangement producing the lowest smoke-shade and the most perfect combustion of the gases. Now it is obvious that it will take many years to displace the existing faulty grates in the metropolis, and for use in the interim, nothing can be better than Melville's "Smoke Abater Shovel." With this utensil, coals are placed, when required, on the bottom of the grate, where they immediately ignite on their upper surfaces, burning downwards, and presenting a brilliant, continuous fire of increased temperature to the view, instead of smoking black coals—damping the fire, cooling the room, and wasting their combustible products to the detriment of the outer atmosphere. The heating-surface of one bar of fire fed from beneath is equal to three bars in height of a fire fed by placing coals on top; so that with half the usual expenditure of fuel, there is double the heat.

The Eagle Range and Foundry Company, 284, Regent-street, are makers of the well-known cooking-ranges which have given their name to the firm. A variety of the "Eagle" ranges are shown here (671). Their distinguishing merits are that they require no brickwork flues, that they can be used with either a close or open fire, that the size of the fire can be diminished or increased at will, and that the flues are so arranged that the ovens can be heated equally in all parts, or an excess of heat turned on to the top or bottom. The firm also manufacture some highly efficient slow-combustion stoves. The back and sides of the fire-box are lined with fire-brick slabs, from which the heat radiates into the room, and by the arrangement of the upper part of the fire-brick slab the hot air is brought into contact with the radiating gill-plate, by which means almost the whole of the heat is extracted before passing into the flue. The back part of the stove forms a hot-air chamber, and where it is desired a nozzle can be added, by means of which a pipe can be attached for drawing fresh air into the room from the outside.

Messrs. J. Nettleton & Co., Sloane-square (666), are makers of open and close front fresh-air stoves, of which over four thousand have been supplied to various Government offices in the metropolis. The object of the open stove is to introduce air, warm and fresh from the outside, without being burnt. Coke or anthracite coal is placed in a chamber in the centre of the stove, beneath which is a regulator for the admission of air, whilst the top of the stove is firmly fixed in a layer of sand, so as to prevent the escape of smoke or fumes otherwise than by the flue. The form of the close stove is that of a raised pedestal, with ornamental top and base. The external body and inner case are made of strong plate iron, having an air chamber from two to six inches, varying with the size of the stoves. There is no cast iron whatever in the bodies, and the furnace consists of fire brick, made expressly to resist the

most intense heat. A tube runs from the bottom of the stove to the outside for the admission of fresh air, which, passing into a separate chamber, is passed through the hot-air compartments, and discharged in a heated condition through a dome at the top of the stove.

In noticing the exhibits in Class XXIII. we omitted to draw attention to the excellent preparations of tar acids exhibited by Messrs. Ness & Co., Darlington, and known as "Thymo-Cresol," which may be recommended as a most effective detergent, disinfectant, deodoriser, and antiseptic. "An excellent sanitary agent" is the praise awarded to it by Prof. Cameron, the Medical Officer of Health and Analyst for Dublin. The "Thymo-Cresol" powder is very useful for disinfectant and deodorant purposes in ashpits, dust-bins, markets, &c.

QUALITY IN TINNED GOODS.

The *American Grocer* says:—"Opening a can containing peaches preserved in three degrees of syrup, the label on which stated they were packed where grown, brought to mind the assertion of one of the oldest and most experienced men in the canned-goods trade, that, had a better quality of goods been packed, the consumption would be ten times what it is at present.

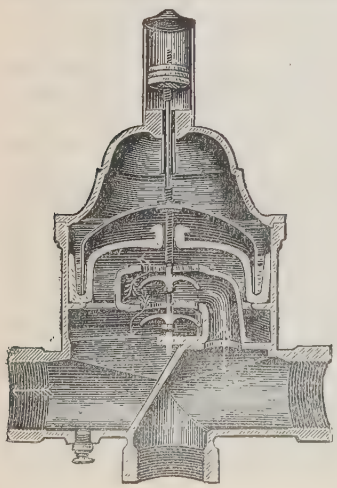
"The remark is true, so far as the principle involved is concerned. Cheap canned peaches are an illustration of how poor goods restrict consumption. Flavour, size, condition, quality of syrup, are ignored in their packing, and the result has been a dragging market for all canned peaches, except extra fruit bearing favourite labels. Consumers have found there is no comparison between evaporated peaches and common canned peaches. The former are economical and of luscious flavour, and every one who tries them for the first time becomes a permanent consumer. On the other hand, one can of peach-slops or trash disgusts people, and causes them to avoid, more or less, all varieties of canned goods. Why preserve in tin, peaches, the flavour of which departs when canned? A can of extra peaches was recently opened, the flavour of which was so near that of a high-flavoured fresh peach that a company of experts were astonished, and unanimously agreed that they had never before found the flavour so perfectly preserved. That sort of fruit in tin increases trade, regardless of price.

"We this week opened a can of what purported to be blackberries. It was some sort of berry-mush, the very sight of which would nauseate the average consumer. Corn, that has no more flavour than basswood shavings, refuse tomatoes, stale peas, spoiled meats, poultry, &c., are placed in tins, the packers stubbornly blind to the fact they are working their own destruction. The trade is exercised as it never has been before about this matter, and it ought to be exercised. It costs about as much for tins, labels, boxes, and labour for the canning of trash as for the finest quality of food. Freights are as great on one as the other. The poor goods repel, the better win, trade. One sort disgusts, the other pleases, consumers. We purpose to do all we can to stop the packing and sale of canned goods, the quality of which will check consumption. It is our purpose to examine and report upon all canned goods sent to this office for inspection. Our decision will be based upon a classification of quality established by a standard used by first-class firms in making purchases. This standard, when completed, we shall keep standing in our columns, to be used as a basis for reports and for the guidance of our subscribers."

The sweat is formed by minute glands, which are everywhere thickly set in the substance of the skin. Some fluid may escape by simple transudation through the skin in the intervals between the glands, but we have no means of determining what proportion this bears to the rest.

Music at the International Health Exhibition.—It has been decided to continue the popular series of ballad and miscellaneous concerts, which have been from time to time so successfully held in the Royal Albert Hall, on every Monday and Saturday evening until the end of October. Organ recitals are also given three times daily on the grand organ in the Royal Albert Hall.

Mrs. Elizabeth Cady Stanton, believes that if women would use their influence toward cleanliness, we could have our streets and cars as clean as our parlours. "It would be very easy to dispose of the papers in the streets if each man would collect his own in a pile and put a match to them, and the boys would be only too happy to serve us in that direction. Perhaps it would be a good idea to organise a police of boys to collect in piles and burn everything that should not be seen in the streets. Dividing the town into districts, and making an officer of the most reliable boy in each district, paying him a small sum, there is no doubt that much could be accomplished in improving the character of our boys, as well as the streets. Let the women and children come together and organise some plans for village improvements in this country."



THE "STOTT" GAS ECONOMISER.

As Adopted by Her Majesty's Government,

And now Exhibiting at the International Health Exhibition,

Is the only effectual means of reducing Gas Bills without diminution of light.

The following are a few of the awards received:

Gold Medal, Huddersfield Fine Art and Industrial Exhibition.
Only Medal for Gas Governors, Crystal Palace Electric and Gas Exhibition, 1882-3.
Silver Medal—Highest Award—Stockport Gas Exhibition, 1882. Eleven competitors.
Sanitary Institute of Great Britain, Newcastle, 1882. The Only Medal.
Sanitary Institute of Great Britain, Glasgow, 1883. Star Certificate. This Certificate is the Highest Award, and only obtainable by those who already hold the Medal of the Institute.
National Health Society's Exhibition, London, 1883. Silver Medal.
International Food Exhibition, London, 1881, Silver Medal. 1882, ditto.

PRICE LISTS AND TESTIMONIALS ON APPLICATION.

JAMES STOTT & CO.

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AND 8, HOPWOOD AVENUE, MANCHESTER.

Also at Stand No. 3372, International Exhibition, Crystal Palace.

MANUFACTORY—VERNON WORKS, LEE STREET, OLDHAM.

PREVENTION AND CURE.

SMALL-POX.

ANY person taken with this dread disease should be kept in a cool darkened room, to prevent disfigurement, and take nothing but Lamplough's Pyretic Saline. This simple treatment, after years of observation, has proved more effective than any other

CHOLERA.

THE late eminent Dr. Stevens recommends Lamplough's Effervescing Pyretic Saline every 15 minutes to any one attacked by this disease. The success of the Saline treatment was such that, out of 465 cases so treated in Coldbath-fields Prison, all but four recovered.

LAMPLOUGH'S
PYRETIC SALINE

Never be without it.

See abundant Medical Testimony.

"SAVED MY LIFE,"

"For the Fever had obtained a strong hold on me. In a few days I was quite well."—*Extract from letter of C. Fitzgerald, Esq.*, when Correspondent of the *Manchester Guardian* in Albania, referring to

THE GREAT REMEDY for Headache, Sea or Bilious Sickness, Constipation, Indigestion, Lassitude, Low Spirits, Heartburn, and Feverish Colds; prevents and quickly relieves or cures the worst form of Typhus, Scarlet, Jungle, and other Fevers, Prickly Heat, Small-Pox, Measles, Eruptive or Skin Complaints, &c.

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The *Pensacola Semi-Weekly Advance* says: Mr. Bithorn "informs us that of 300 cases (of Fever) treated by him with this medicine all recovered. We must concur with him in its great value."

Sold by all Chemists in Bottles at 2s. 6d., 4s. 6d., 11s., and 21s. each.

H. LAMPLOUGH, 113, HOLBORN, LONDON, E.C.

Samples can be seen at the HEALTH EXHIBITION, No. 262, Eastern Quadrant.

THE REVERSIBLE

PATENTED.

Hitherto many Ladies have written to us expressing a difficulty in obtaining these Boots. The manufacturer will therefore supply (*pro tem.*) a single Pair through any respectable Retail Establishment. Any further difficulties in obtaining them, please write to us.

THE "REVERSIBLE" BOOTS

are now being worn by many ladies of distinction, and are rapidly increasing in favour. Their specialties are distinct from every other Boot yet introduced, and the numerous Testimonials we have received assure us the objects are satisfactorily attained.

TESTIMONIALS.

Mrs. R. A. PROCTOR (*Knowledge*) writes:—"They are the most comfortable boots I have ever had. I think they are just perfect on the feet."

Myra's Journal says:—"Among the hygienics of dress, the 'REVERSIBLE' Boot takes a high position. This elegant boot is manufactured by the patentee, Mr. John Branch, and, unlike many 'healthy' dress appliances, is comfortable, pretty, and durable. The heel is high enough for comfort, and shapely for beauty, yet is firm to the tread. The especial hygienic property of the 'REVERSIBLE' Boot is that it is a boot which can be worn on either foot."

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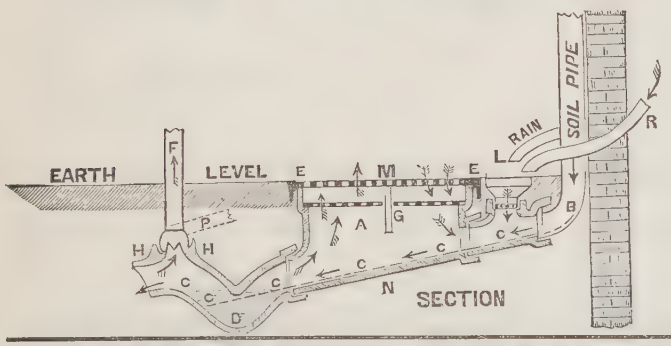
POTTS' PATENT EDINBURGH SEWER TRAP.



Silver Medal, Brighton, 1881.
First-class Certificate, South Kensington, 1881.

The only Trap which gives entire disconnection between the house drains and the sewer.

"Admirably adapted to effect the object you have in view."—A. CARPENTER, M.D.

Birmingham Sanitary Association,
28 & 29, UPPER PRIORY,
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Awarded 3 Gold Medals, Calcutta International Exhibition, and Gold Medal, International Exhibition, Crystal Palace, 1884, and 27 other Prize Awards.

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For the Purification of the Air in Sick-Rooms. Price 1s. 6d.

CALVERT'S DENTOPHENOLENE.

A Fluid Dentifrice, prepared with Calvert's No. 1 Carbolic Acid (Phenol), preserves the teeth, arrests decay and prevents Toothache. Price 1s. 6d. and 2s. 6d.

F. C. CALVERT & CO., MANCHESTER.

Trade Mark

THE PATH TO HEALTH IS THE FOOTPATH.

Registered.

DOWIE & MARSHALL, 455, *Strand, London* (*opposite Grand Hotel*), *established* 60 *years, are exhibiting their Boots and Shoes at No.* 2, *Eastern Quadrant, International Health Exhibition. These goods gained a Silver Medal at the National Health Society's Exhibition of* 1883, *for the excellent hygienic principles of their manufacture.*

Dowie & Marshall may claim to be the pioneers of the making of boots and shoes on hygienic principles, having consistently refused to make boots with narrow toes and high heels since 1824.

Gentlemen's, Ladies' and Children's Boots and Shoes are kept in stock of every size and kind ready for immediate wear.

Illustrated Catalogue, with Testimonials from Eminent Men, Gratis.

DOWIE & MARSHALL, 455, Strand, London,

OPPOSITE GRAND HOTEL.

TIDMAN'S SEA SALT,

For Producing a Real Sea Bath in your own Room.

ANALYSED AND APPROVED BY DR. HASSALL.

The contents of a 7-lb. Box suffice for 22 gallons of water. All who desire health and strength should daily use this unrivalled invigorator.

World-wide renown having induced many imitations, purchasers should see that every package bears the Proprietor's Trade Mark—*A Bag with the words:—*

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SOLD IN BAGS AND BOXES BY ALL CHEMISTS.

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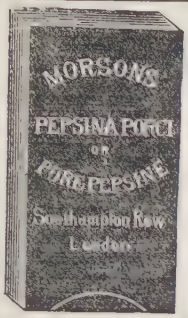
SUPPLEMENT.

Containing full and descriptive Reports of the International Health Exhibition.

No. 20.] FRIDAY, SEPTEMBER 19, 1884. [*Gratis with* "HEALTH."



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Highly recommended by the Medical Profession for

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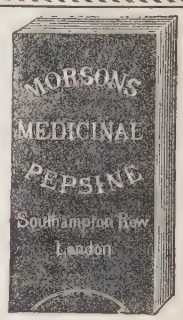
OPINIONS OF THE PRESS WRAPPED ROUND EVERY BOTTLE.

The popularity Pepsine has acquired as almost a specific for chronic dyspepsia, indigestion, &c., is due to the fact that it is the nearest possible production of the active principle of the gastric juice of the stomach. Unfortunately, like all other inventions of a like nature, Pepsine has been not slightly descredited by the spurious manufactures that have been issued from time to time; it is therefore necessary as a guarantee of its efficacy to see that each bottle bears the makers' name,

MORSON & SON, Southampton Row, Russell Square, London.



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PURITY in the LAUNDRY. PURITY in the BATH.

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REAL IVORY JELLY.

Highly recommended by the Medical profession.

The El-Teb Ivory Company is now prepared to supply, carriage free, to any address, large or small packets of their famous

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The delicious Jelly made from this preparation is largely known on the Continent and in many parts of England.

It is made from the Purest African Ivory, and is alike simple, strengthening, and delicate in flavour.

Small packets, containing sufficient to make 1 pint of jelly, 9d. ; 1 quart, 1s. 2 quarts, 1s. 6d., 5 quarts, 3s., 10 quarts, 5s.

Full instructions for making the jelly sent enclosed in every packet.

Orders (to be accompanied by remittance) to be addressed to the

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See "Health," Aug. 22, 1884.—Page 316.

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Princes' Hall, Piccadilly, London,

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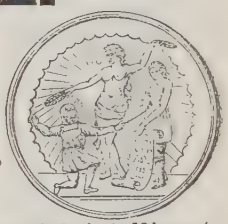
Were Awarded a Medal at the Rational Dress Exhibition of 1883,



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MADGETTE et CIE. make up the Newest Designs of the best materials and charge moderate prices.

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CONDY'S FLUID

Used in the SICK-ROOM, in the BATH, in SCHOOLS, WORKROOMS, DAIRIES, on board SHIP, in all HOSPITALS, and in the ROYAL PALACES.

Bottles: 1s., 2s., 4s., and in Gallons, 10s.

CONDY'S FLUID considered as a disinfecting and purifying agent, surpasses all others for the following reasons:

1. It not only **DEODORISES**, but **DISINFECTS** perfectly by burning up for ever cause of infection.

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3. It is **NOT POISONOUS**, being in extensive use in India, and at sea to purify water for drinking.

4. Having **NO SMELL** of its own it cannot be suspected of merely concealing one smell by another.

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☞ **REFUSE COLOURABLE IMITATIONS OF CONDY'S FLUID.**

ALL SUBSTITUTES ARE WEAK AND WITHOUT ANTISEPTIC ACTION.

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SHREWSBURY PATENT W.C.

The Best and Surest Flush.
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The Best and Simplest Trapped Pan.
The Best Area and Depth of Water.
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No Plug. No Valve. No "Wash-out" into a Trap below.

Patented by Wm. White, F.S.A., Archi.; Inventor of the Porte-Knapsack, Springless Locks, and other domestic appliances; and Author of "Domestic Plumbing" (Lockwood & Co.); "Æsthetical Sanitation" (Stanford); "Knapsack Handbook" (Stanford).

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Best Disinfectant, Deodoriser, Antiseptic, and Insecticide.

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Far superior to Carbolic for Ashpits, Cesspools, Drains, Sinks, Sewers, for all Household and Medical Purposes.

LITTLE'S PHENYLE TOILET SOAP

Beautifies, Cleanses, and gives a Healthy Glow to the Skin, Removes all Impurities.

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FOR ORDINARY HOUSEHOLD PURPOSES.

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"International Health Exhibition" Supplement to

HEALTH

A Weekly Journal of Domestic and Sanitary Science.

EDITED BY DR. ANDREW WILSON, F.R.S.E.

"Reason's whole pleasure—all the joys of sense—
Lie in three words, Health, Peace, and Competence."—*Pope.*

No. 20. FRIDAY, SEPTEMBER 19, 1884. [*Gratis with* "Health."

THE INTERNATIONAL HEALTH EXHIBITION.

TWENTIETH NOTICE.

GROUP III.—THE DWELLING-HOUSE.

CLASS XXIV.—(Grates, Stoves, Kitcheners, Ranges, Boilers for Domestic Use, Apparatus for Heating and Warming, Smoke Abatement, &c.) *continued*:—Amongst the almost bewildering number of gas-cooking and heating stoves, a few claim some special notice. Messrs. John Wright & Co., Broad-street, Birmingham (620), send their "Eureka" gas-cooker, now extensively used at the South Kensington School of Cookery. They are double-cased and are jacketed on the sides, top, back, and door with a new non-conducting material, by the use of which a saving to the extent of 40 per cent. of gas is effected, by preventing loss of heat in the oven by radiation. Some idea of the value of this non-conductor may be gathered from the fact that a teacupful of water (jacketed with $\frac{3}{8}$ths of an inch of the Silica), which at 10 o'clock stood at 203 deg. Fahr., had at 2 o'clock lost only 50 deg. of its heat. The hot plate is formed of wrought-iron bars, polished upon the top, which form a perfectly flat surface to receive saucepans and kettle, and, as the bars are loose, they can instantly be removed for cleaning, &c. The hot-plate, being of wrought-iron, cannot be broken by water boiling over on to it whilst it is hot, and thereby causing sudden contraction of the metal. Mr. William Hellier, 16, Duke-street, Grosvenor-square (637), exhibits an invention for heating water with gas for baths and general domestic purposes, which heats the water in its passage through the apparatus, no gas being required to be burned until the water is drawn off. Several coil-heaters, for conservatories, &c., are also shown. Gas-stoves without flues are made by the Patent Gas-Fumes Neutraliser Co., Limited, Glasgow (648), for both heating and cooking purposes. The products of combustion, which are reduced to their lowest point, are converted into a liquid, and stored in a chamber at the bottom of the stoves, whence they may be readily removed. Messrs. Wm. Sugg & Co., Limited, the well-known gas engineers, of Westminster (651), send a few of their many ingenious contrivances for roasting, grilling, baking, coffee-roasting, &c., by means of gas, with a result as satisfactory as if these operations were conducted before the most orthodox open fire. Sugg's meat-roaster, for instance, consists of a chamber oval in section, with closed ends, the upper part hinged, so that it can be opened wide to put in the meat. The spit which carries the meat turns in notches in the ends of the lower half. The source of heat is two rows of small, luminous flames, one on either side of the roaster, above the level of the dripping-pan, so that the dripping is not kept at a frying temperature while the joint is being roasted. The clockwork *tournebroche*, which causes the meat to revolve, has a fast and slow motion, to suit joints or poultry, and is also provided with a bell-and-clapper arrangement by which the cook's attention is called when it requires to be wound up. The "Charing Cross" gas-kitchener, too, is a general combined apparatus to meet all the requirements of a household, and is based on the same principles as the "Roaster." The little "Connaught" stove, the base of which only occupies a space of 13 in. by 12 in., is a combination of a roaster with boiling space for two pans or kettles. The roasting is performed entirely by reflected or radiated heat (thus avoiding the over-heating of the dripping), and the roasting chamber is thoroughly well ventilated. It is provided with a spit for roasting small fowl, and with a double cage or support (which can be affixed to the spit) for steaks or chops. The spit is provided with a handle and a notched hilt, so that whatever is being roasted can be placed in any position. Dr. Stephenson's Patent Portable Gas-heating Water Coils, exhibited (654) by the inventor, Mr. W. H. Stephenson, M.D., Blackburn, is an example of the utilisation of gas without the contamination of the apartment by the deleterious products of combustion. These water coils are constructed of a series of double copper tubes, $4\frac{3}{4}$ in. in diameter, placed one above the other and connected at each end. The interspace between the inner and outer tubes contains water, which rapidly circulates when heat is applied. No boiler or water cistern is attached; and when once filled with water, no further supply is required. Luminous or atmospheric jets, on a swinging bracket and contained in a fire-box, act directly on the under surface of the lower tube, and the products of combustion, carried by a flue, pass through the upper tube, giving off their heat in transmission. A gas governor is connected with the swinging bracket, which allows of only sufficient gas to raise the temperature of the water to just under boiling-point. Provision is also made for vaporising water or medicated fluids. It will be obvious that from the arrangement of the horizontal tubes the effective heating capacity is practically doubled, for as the total thickness of the annular tube is less than the thickness of the body of a cast-iron pipe of similar diameter, the radiating area is doubled, since the interior of the tube is as effective as the exterior in warming the air, which has equal access to both. The heat regulator is especially simple and effective in its operation. Mr. Henry H. Hazard, 5, Park-side, Knightsbridge, shows (657) a patent gas-fire having no chimney, the products of combustion in this case being conveyed into condensers, where they are exposed either to the cooling influence of the air or immersed in water. The condensed liquid is then passed through chambers containing lime or other absorbent, so that the escaping air shall not be injurious to health. Messrs.

The ASSOCIATION FOR THE SUPPLY OF PURE VACCINE LYMPH, formed 1877, 3, Hemmings-row, St. Martin's-lane, London, W.C.; near Charing-cross Telegraph Office, 448, West Strand, W.C. Sole agents for Dr. WARLOMONT's Calf Vaccine.—[ADVT.]

Charles Wilson & Son, Carlton Works, Leeds (661), send a number of their gas cooking-stoves and gas-baths. Externally they are extremely attractive, and internally the stoves have a considerable cooking capacity, and are arranged so as to prevent the fumes from the gas coming into contact with the article placed in the ovens. The gas kitchener made by this firm was invented for the Leeds School Board, and has since been adopted by similar bodies in many of the large towns of the Midlands and the North.

Class XXV.—(Ventilation, Air Inlets and Outlets, Cowls, Air Straining and Cleansing.)—In this small but important class the first exhibit to be noticed is that of Messrs. Sharp & Co., of 11, Holborn-circus, E.C. (688), who show a large stock of ventilators applicable to almost every purpose—from the saloon of an Atlantic liner to the smallest private apartment. Mr. D. Radclyffe, 128, High Holborn (690), illustrates, in a very pleasing fashion, his system of window-ventilation and decoration; and Mr. Augustus Frere, F.R.I., B.A., 34, Essex-street, Strand (691), sends models of window-sashes and doors made with cheap ventilating appliances, suitable for the dwellings of the poor. The window-sashes are hollow, and the fresh air enters by them into a box at the top of the window-frame, the box being fitted with a lid or cover. The door is made double up to half its height, a hollow space being left between the two layers of wood; the fresh air enters this chamber by a good-sized aperture in the bottom of the door, and thoroughly ventilates the room without draught. Messrs. H. W. Cooper & Co. (Limited), Upper George-street, Edgware-road (692), have an extensive exhibit of glass louvre and venetian ventilators.

Mr. Francis Lloyd, 40, Mecklenburgh-square, W.C., sends (698) a model of a room to show how "complete and imperceptible ventilation can be obtained by supplying fresh air solely to the upper part of a room from a ventilating fire-grate, while vitiated air is removed at the chimney throat." The model represents a grate (36 in. size) suitable for a room of 4,000 ft. capacity, and supplying, with a consumption of 2 lb. of coals per hour, 160 cubic feet of fresh-warmed air per minute. The outer air passes into air-flues, placed under the hearth, in the fire-grate jambs, and in the head of the grate. Thus they take up heat which in ordinary grates escapes up the chimney. These air-flues, which are large, are nowhere in contact with the fuel-box, and therefore cannot be overheated. The opening to the chimney is 30 in. above the hearth, and measures 14 in. × 4 in. It has in front of it the air-flue in the head of the grate, which has a surface of 120 square inches. The products of combustion pass close to this as they enter the chimney. The zigzagged back is inclined forward at such an angle as to reflect the heat from its surface to the sides of the room, and to prevent radiation from the fire up the chimney. An important result of this form of back is that the strongest draught up the chimney is at the grate-head, whereas in ordinary grates the draught is strongest near the floor, which is thus always cold. The fuel-box is lined with fire-bricks, which are hollow at the back. Highly-heated air passes from beneath the fuel-box to the hollows behind the bricks, from which it issues through 24 holes to the surface of the fire, mixing with the smoke and converting it into flame. This grate will consume any kind of bituminous or anthracite coal or coke, and is manufactured for the inventor by Messrs. Hardy & Padmore, of Worcester.

A system of house-ventilation by exhaustion, which deserves some attention, is exhibited (713) by Mr. Howard Thompson, C.E., Victoria Buildings, Manchester. The method adopted by the inventor seems to us singularly simple and effective; and we are informed that at the recent exhibition at Manchester it successfully withstood some very severe tests. At any rate it dispenses with cowls, extractors, and other architectural excrescences. The system is as follows:—In building the house, a cavity or flue is left in the thickness of the wall on each side, and near to the ceiling of all the rooms, and in other convenient places, air-bricks or grids are inserted, which are connected with the flues before mentioned. These flues are continued up to the roof where, immediately under the ridge, is formed an exhaust chamber. The exhaust is kept up by series of ventilating ridges or crests, which are made in styles in keeping with the architecture, and the construction of which thoroughly prevents any down draught. Thus, the vitiated atmosphere of the house so furnished with this system is constantly being drawn off, fresh air entering from outside to replace the vacuum so caused. In connection with this apparatus, Mr. Thompson also makes a mercurial air-valve, which is intended to prevent the continual change of atmosphere caused by the adoption of the system pure and simple. Such a change, of course, would be a defect in hospitals and sick-rooms. The apparatus consists of a hermetically sealed bottle charged with mercury, and may be adjusted to the maintenance of any required temperature. As the heat of the room increases, the air in the bottle swells, the mercury rises in the tube, where floats a weight, which, on rising, opens the valve and releases the hot air up the flue to the roof. As the room cools, the mercury falls, the weight descends, and the valve closes. The roofs of houses, filled as we have described, may be covered with slates or ordinary tiles, but Mr. Thompson makes some special tiles, which are formed in two parts, and which are laid on the roof overlapping each other. As the wind impinges on the roof it is carried below these tiles to exhaust-chambers, thus rendering the process of drawing the inhaled air from the house both more rapid and complete.

Mr. Jas. E. Ellison, Victoria-square, Leeds (717), is the patentee of a system of ventilation in which the air-bricks, instead of having straight holes on them, are fitted with conical perforations tapering larger to the inside. A strong current of air entering a room through these holes is so effectually radiated and diffused that there can be none of that draught which is so unpleasant an accompaniment of many ventilating bricks. Another very good ventilator made by the firm is called the "Radiator." To ventilate on this principle, a box must be fixed into the thickness of the outside wall, where a grating is built. The "Radiator" slides into this box. It is composed of a flat disc having behind it divisions placed crossways, and converting the box into four wedge-shaped compartments. The incoming air impinges against these divisions, and is dispersed in all directions, instead of entering the apartment in one solid (if the term may be used) gust of air. These ventilators may be easily closed and opened, but for schools and other buildings where it is desirable that the officials only should be in charge over them, they are fitted with a screw-movement and loose key. Some ventilating bricks, made upon the same principle as the "conical" bricks, and Stevens' exhaust ventilators, are amongst the other appliances shown at a stand which is worth the attention of architects, builders, and those of the public who are interested in the important question of ventilation.

Mr. Edward Wood, of the Red Bank Works, Manchester (700), by whom the Royal Infirmary in that city has been ventilated throughout, sends specimens of Tobin's patent tube, of exhaust roof-outlets, of ventilating sun-lights and of flue-outlets for chimney breasts. The latter

is a very useful article for the purpose for which it is intended, viz, to carry away heated air from rooms into air-shafts and smoke-flues. It is made with either brass or iron fronts. The slightest up-current is sufficient to open them, and down-draught or admission of smoke is rendered impossible when they are properly fixed; and there being no mechanical action, nothing in them can get out of gear. The sun-lights are made with two ventilating, or rather exhausting, tubes; one to carry away the products of the gas, and the other to draw off the heated air.

Mr. W. P. Buchan, M.S.A., 21, Renfrew-street, Glasgow (715), is the maker of Induced Current Fixed Ventilators, which are cheap in price, can be adapted to any style of architecture, and which, claiming for themselves the following advantages, are worth consideration:—They tend to produce a rapid up-current; they have no mechanical motion, and are less liable to down draught than any fixed ventilator yet invented. They act upon the principle of the induced current. The wind, or horizontal air current, in rushing through between the outside perpendicular plates and past the body of the ventilator, draws out with it the air contained within the ventilator, and so causes an up-current in the pipe or ventilating shaft upon which the ventilator is fixed. They are free to work with the slightest breath of air, and have shown very favourable results in experiments made between them and other ventilators. They may be specially made to suit various styles of architecture. The inside diameter of the up-cast shaft or pipe may be from about one-third to one-half the diameter of the body of the ventilator, just as ordered or desired. Thus a 24-in. ventilator may have its upcast pipe any size from 9 in. to 12 in. in diameter. This supplies a public want, and allows room for a cheaper or more expensive article to be selected or bought, as best suits the circumstances of the case. Of course, the larger the body of the ventilator in proportion to the ventilating pipe, the greater up-current is expected. Much the same principle is applied by Mr. Buchan to his ventilators for ships and yachts. Some experiments with these appliances were recently made, and were so successful that they have been applied to all the vessels of the well-known "Clan" line.

Messrs. J. M. Lamb & Co., 119, Finchley-road, South Hampstead (719), are makers of the "Triumph" ventilators, applicable either to the house, the passenger-ship, or the smoking-compartment of a railway-carriage. They have already been fitted to a large number of public buildings, where, as testimonials testify, they answer admirably, proving noiseless, effectual, and a sure preventive against down-draught and suction. They are warranted to answer in situations where fixed ventilators fail, as no syphonic action can affect them as it does a fixed ventilator, because the opening over the exhaust chamber is the strongest point. All the air that passes over the fixed cone is conveyed to the centre by the guides, and, at the same time, the revolving cones take in all the air that comes in contact with them. The air is then condensed to double pressure, and twisted over the cone's mouth like a piece of rope, which makes the centre of this ventilator the strongest point of action, instead of the weakest. The "Triumph" Chimney Cowl, another of Messrs. Lamb's manufactures, is on very much the same principle, and, therefore, equally effective. It possesses the active principle of the best fixed chimney cowl, with the addition of the guides, which conduct the air over the fixed cone's mouth in a concentrated spiral form, and also the addition of the improved revolving cone head, divided into segments, which collect all the air they come in contact with, and twist it over the cone's mouth with the smoke, the segment pieces allowing a free exit for the smoke on the off side. It does not matter from which point or how the wind blows, it is always conveyed to the centre with the smoke in a spiral form before its exit on the off side, and thereby making the centre of this cowl the strongest point.

Messrs. Ewart & Son, 346, Euston-road (723), are also makers of chimney cowls and pots. Their "Empress" smoke-cure carries out the theory adopted by the firm that the only method of curing a smoky chimney is to produce a strong up current, and that in bad cases this can only be effected by the use of a movable head, turning by the action of the wind. In those cases, however, in which a revolving head is not required, Messrs. Ewart recommend their "Prince" chimney-pot, the pipes, cones, and outer ring of which are made oval, instead of round; by which means greater space is secured for the free passage of smoke, without making the pots too wide to stand side by side on the chimney-stack. The "Empress" is strongly recommended, we may add, by Dr. B. W. Richardson. The old objection to revolving heads, on the ground of the noise they make, is obviated in the invention under review by making the spindle work on a carefully-turned steel centre, placed at the bottom of a box containing a quantity of oil. By this means, friction is so much reduced that the head revolves without noise, and almost without wear.

Among other exhibits in this class a few only remains to be noticed. The patent "reliance" chimney cowl of Mr. E. S. Wright, Commercial-road, Portsmouth (704), is of a simple and effectual character. Two openings are provided for emitting the smoke, the one at the top taking it off in normal conditions of the atmosphere, the lower one allowing it to escape when the wind is blowing in a downward direction. There are no internal arrangements to get clogged with soot or offer resistance to the sweep's machine, and, judging from the principles upon which it is constructed, it appears likely to answer its intended purposes. Messrs. Josiah Moore & Sons, Sekforde Works, Clerkenwell (712) send glass louvre, circular, and venetian ventilators, which are well made and nicely finished, and ought to command purchasers. Mr. W. W. Nicholls, 42, Luard-street, Caledonian-road (703), has been successful, since the Exhibition opened, in obtaining a very large order for some improved window sashes and frames, which dispense with weights and allow of both windows being completely cleaned from the inside of the room; and Messrs. Hayward Bros. & Eckstein, 187, Union-street (710), exhibit their well-known Semi-Prism Pavement Lights for lighting basements from the street level.

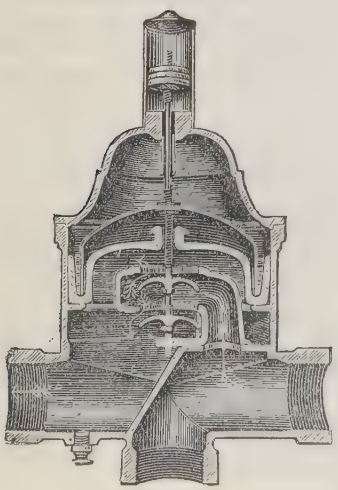
Class XXVI. (Lighting Apparatus:—Electricity, gas, oil, and other lamps; mineral oil, wax, and other candles; vegetable and animal oils). This class, as a whole, is of more immediate interest to the gas and electrical engineer than to the sanitarian; but there are, nevertheless, several exhibits which demand our attention. First to be noticed is the excellent and well-known "Stott" gas-economiser, manufactured by Messrs. Jas. Stott & Co., 147, Fleet-street (726). The object of this invention, which during the past few years has had an uninterrupted success at exhibition after exhibition, is to prevent over-pressure and the consequent waste therefrom. The *modus operandi* is this:—any excessive pressure immediately acts on an inverted cup, sealed in an annular trough filled with quicksilver. To the centre of the inverted cup is attached a simple spindle, at the bottom end of which is a double beat valve, a high pressure raising the inverted cup, and thus closing the valve, while a low pressure allows it to fall, thus opening it. For instance, say 50 out of 100 lights be turned off, there will be a corresponding increase of pressure on the inverted cup, raising, and thereby closing, the valve partially, so that for every light turned off or on, or any

increase or decrease in street mains, there is a corresponding opening or closing of the valve in the governor, the pressure at the burner thus being the same under any circumstances, the result being a saving of from 10 to 30 per cent., varying according to the pressure at which the gas is supplied to the consumer. The "Stott" economiser has been submitted to many and severe trials, from which it has consistently emerged with credit; and, as there are many disadvantages to health from an excessive consumption of gas, especially in small houses, this apparatus may be confidently recommended on this, as well as on economical grounds.

Several other gas governors are also exhibited in this section. The Lyon's Non-mercurial Gas-Governor, shown (727) by the makers, Messrs. Fardon & Feeny, 106, Queen Victoria-street, is attached to the outlet of the meter, the pressure of the gas acting on a chamber filled with oil and water, and raising a float which closes the valve leading to the house-pipe until the adjusted pressure is reached. The manufacturers have received much excellent testimony as to the efficacy of this contrivance. The "Unique" self-acting governor burners are shown (738) by Messrs. J. & W. Goodson, 213, Vauxhall Bridge-road; and the Omega Gas Light Co. (Limited), Old Kent-road (748), exhibit their apparatus for improving and economising gas-lights, the gas passing through a purifying medium called "Carboleine." An invention by Mr. S. Grey, Park-road, Albert-bridge, S.W. (740), for replacing the old meters whose hieroglyphics none but the initiated can decipher, with meters whose registers are intelligible to the ordinary mind, ought not to pass without notice. Nor should we omit to mention the exhibit of the Hon. Jno. W. Plunket, Bridge-chambers, Queen Victoria-street (729), of an "absolute safety gas-tap." The apparatus prevents the burner-tap remaining open when the gas is extinguished, and so does away with the cause of many fatal accidents. Its utility is, therefore, at once apparent.

International Health Exhibition.—On and after Saturday, September 20, the Exhibition will be closed at 10 p.m. on Saturdays. From Monday, September 15, the Electric Light Fountain Displays will be as follows:—Monday, 8.30; Wednesday, 8.30 and 9.30; Thursday, 8.30; Friday, 8.30; Saturday, 8 and 9 p.m.

Revaccination in Schools and Colleges.—Dr. Garth Wilkinson writes as follows:—There is some talk of a house-to-house visitation of London in order to carry out vaccination and revaccination, and thus meet the present epidemic of small-pox. In the course of the last ten years, during which I have given constant attention to the subject of vaccination, several instances have occurred in which vaccination and revaccination have been accompanied by eruptions more or less closely resembling the vaccine eruption appearing on other members of the family, or on other children of the school. Some of these eruptions I have seen myself, and they were clearly vaccinal. Other cases have been related to me by parents whose children were at school during the last great epidemic. I have reason to think such occurrences were common, and that many suffered, especially in large schools. I bring the circumstance forward in the interest of vaccine science, and also in the interest of sanitary precaution. It has been occasionally alluded to in medical journals, but has not awakened the attention it deserves. It cannot be denied by those who have not seen it. I have seen it. And it proves that the disease set up by vaccination, contrary to the opinion of Jenner, and the common opinion now, is a contagious and probably an infectious disease. How can it be otherwise? The disease from which it is derived is contagious, although possibly in different degrees. The vaccine pustule represents several diseases, and may affect other persons according to the kind which lies in it. It may give "pure vaccine" disease if the cow is the first source. It may give small-pox if small-pox passed through the cow, and called vaccine, be the origin. That it does spread itself there is no doubt. The very look of "pure vaccine pustules" suggests small-pox and infection. If you saw them on a person's body, and did not know that they are a product of medical skill, you would shun the person, and demand his quarantine. And wisely. They are of the nature and potency of a contagious epidemic, and tend to fill the town with the effluvium of vaccinal small-pox. If private families do not object to introduce this epidemic, or this cluster of epidemics, into their homes and nurseries, they have a right to free action. But they ought to tell their neighbours what is going on. As to schools, the parents of all the children should be informed of what is about to happen; and the vaccinated children should undergo their contagious disease at home, and be sequestrated there until their own eruptions, and those to which they give rise, have passed away; say, for safety's sake, for three months from the date of disappearance of the last spots. And the rooms should undergo complete disinfection. Personally, I would not allow any child for whose circumstances I was responsible to inhabit a house with a vaccine patient or with a small-pox patient.



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Silver Medal—Highest Award—Stockport Gas Exhibition, 1882. Eleven competitors.
Sanitary Institute of Great Britain, Newcastle, 1882. The Only Medal.
Sanitary Institute of Great Britain, Glasgow, 1883. Star Certificate. This Certificate is the Highest Award, and only obtainable by those who already hold the Medal of the Institute.
National Health Society's Exhibition, London, 1883. Silver Medal.
International Food Exhibition, London, 1881, Silver Medal. 1882, ditto.

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Among the subjects for this year we may mention that arrangements are made or in progress for a Series of Papers on

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TESTIMONIAL.

From EDWARD C. ANDERSON, M.D., M.A., Cantab.,
Tom Law, Darlington, November 5th, 1880.

To Messrs. Krohne & Sesemann.

Gentlemen,—I have the greatest pleasure in acceding to your request that I should, from my experience of the Martin's Bandages, testify respecting their excellence.

My knowledge of the quality of Bandages of English make is limited; for, having, about fifteen months back, applied bandages sent to me from this source, and noting the evident irritation and discomfort produced by them—so great, indeed, that each patient soon discontinued their application—I ceased to recommend and use them.

In April of this year, I for the first time used the original Martin's Bandage, and since then I have applied them and none else to the limbs of nearly twenty persons suffering from a variety of complaints, such as ulcers of the leg of old standing, which had resisted all treatment for more than fifteen years; varicosities (the unsound leg of one patient, a man, measured 25 inches round the calf, against 16½ inches, the size of the sound leg; and his condition was such that, before coming under my care, it had been by his former attendant seriously debated whether or not the leg should be amputated to save life. This man goes about wearing a 21-foot Bandage, and the calf of the unsound leg now measures 18 inches); erysipelas, œdema, rachitis, &c.

Suffice it that all, both young and old, have been enabled to wear them with comfort; most of the cases under treatment have been cured, all benefited, and many although well, continue to wear them on account of their safety and the support they give rise to.

I may appear to have said too much in their favour. I can assure you that my feeling is that I have said too little. The great success attending their use evidently arises from the excellent purity, smoothness, impermeability, and non-irritating nature of the Indiarubber of which each Bandage is composed.—I am, &c.

EDWARD C. ANDERSON, M.D., M.A., Cantab.

CAUTION TO THE TRADE.—The Sole Agents for the Genuine Martin's Bandages request the Trade to compare their Prices with those commonly charged for worthless imitations, which are advertised as "Recommended by Dr. Martin," or as "Suggested by Dr. Martin," which is misleading, the vendors having not the shadow of a title to use Dr. Martin's name in connection with their bandages. Each GENUINE bandage stamped with Dr. H. A. Martin's signature is warranted to be perfect in every respect, and to wear well.

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The following are a few of the many advantages which the material employed in the manufacture of **HARTMANN'S HYGIENIC WOOD WOOL DIAPERS** possesses over any other known substance, and especially over common absorbent cotton wool.

1. Hartmann's Patented Wood Wool has an enormous capacity of absorption, so that as a rule the use of one of **HARTMANN'S HYGIENIC WOOD WOOL DIAPERS** will be found equal for all practical purposes to many of the ordinary or any other kind.

2. All disagreeable odours, and the decomposition of the secretions, are entirely and effectually prevented, owing to the antiseptic properties of the material.

3. The Diaper is very light, and will always remain flexible and soft, an important advantage over the ordinary Diaper, which is necessarily heavy, hot, and liable to chafe the skin during its use, all of which disadvantages are entirely avoided in using **HARTMANN'S HYGIENIC WOOD WOOL DIAPERS.**

4. As the watery secretions can freely evaporate, the Diaper will always feel dry and remain soft. This is due to the nature of the material employed, and adds greatly to the comfort of the wearer. The Diaper also being constantly cool, offers a striking feature which no other Diaper, or anything of the kind, possesses.

5. The moderate price at which they are sold, bringing them within the reach of everyone, will allow their destruction after use, by simply burning them, a fact which, from a sanitary and economical point of view, as washing is dispensed with, is of the utmost importance.

N.B.—The burning of the Diaper can be effected at any convenient time. The antiseptic properties of the material will prevent any smell whatsoever while being kept after use, until convenient to be burned. The latter process is also entirely unattended by any kind.

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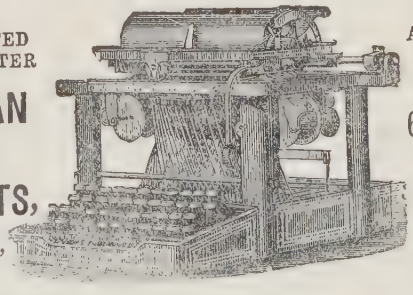

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See "Health," Aug. 22, 1884.—Page 316.

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HEALTH

A Weekly Journal of Domestic and Sanitary Science.

EDITED BY DR. ANDREW WILSON, F.R.S.E.

"Reason's whole pleasure—all the joys of sense—
Lie in three words, Health, Peace, and Competence."—*Pope.*

No. 21. FRIDAY, SEPTEMBER 26, 1884. [*Gratis with* "Health."

THE INTERNATIONAL HEALTH EXHIBITION.

TWENTY-FIRST NOTICE.

GROUP III.—THE DWELLING-HOUSE.

CLASS XXVI. (Lighting Apparatus, Electricity, Gas, Oil, and other Lamps; Mineral Oil, Wax, and other Candles; Vegetable and Animal Oils) *continued*:—There are a number of candle and oil lamp-makers exhibiting in this class, prominent amongst them being the stand of Messrs. J. C. & J. Field, Upper Marsh, Lambeth (770), which represents all the varied excellence and beauty which is to be expected from a firm who have made candles for two centuries, and have been to the fore in every improvement. The upper section of the case is devoted to a castle constructed entirely of spermaceti candles. This unique structure contains over 1,000 separate parts, and from battlement to portcullis is of a pure alabaster white. Ozokerit, with which the name of Field is so closely connected, is represented by a bust of an Abyssinian chief, cast entirely of crude and refined ozokerit, the head being jet black, the robe creamy white. This gives an excellent idea of the alternate plasticity and hardness characteristic of ozokerit. Messrs. Field have taken occasion at this Exhibition to strongly emphasise spermaceti candles in connection with health. There can be no doubt that, were it not for the high price, no other candle would have a chance against them. Snow-white, transparent, unbending, soft and lustrous of flame, and so regular in burning that it has become the universal standard for gas-testing, the spermaceti candle falls little short of perfection in its kind. The one fault to which all candles are heirs in greater or less degree is guttering, and this can only be remedied by extraneous appliances, all attempts at adapting the construction of the candle to the obviation of this evil having proved abortive. Messrs. Field, it is true, exhibit "aërated candles" perforated longitudinally, and these, in moderate air currents, greatly modify the baleful overflow, but in a strong draught even these succumb. The lychnophylax, or candle guard, however, which the firm shows, appears to have quite settled the matter. Two candelabra on Messrs. Field's stall are filled with spermaceti candles, furnished with the glass guards, and, although in furious draughts from all sides, not a drop of grease has overflowed, and the candles burn evenly to the end. This is, no doubt, a great improvement, and will prove a boon to all who object to cascades of wax upon their dresses and carpets. The remainder of J. C. & J. Field's case is divided into three sections—wax, paraffin and ozokerit, and household candles. Under these heads are arranged some fifty or sixty leading varieties of candles of every colour and form; the cabled boudoir in delicate rose and pearl tints, and the Cleopatra obelisk with hieroglyphics, as in the needle, being the most notable. Of soaps, also, Messrs. J. C. & J. Field exhibit a considerable variety in which all tastes are consulted. Especially notable is their newly invented samphire soap. As the name suggests this is essentially a sea soap in which pure vegetable oils are combined with alkali taken direct from the ashes of seaweeds and marine plants. As this alkali is chiefly potash the samphire soap possesses the well-known softening qualities of that element which are enhanced by the large amount of glycerine retained in the saponification. There is one peculiarity about this soap that deserves notice. It has acquired, together with the hygienic properties of seaweed, that of changing colour under atmospheric influences, and the consequence is that the tint is found to vary, in different tablets, between sap green and citron yellow. This is one of the best proofs that could be afforded of the absence of artificial pigments. In fine, Messrs. J. C. & J. Field's exhibit is well worthy of a visit from those who regard the Health Exhibition as something more than an extensive pleasure-garden.

The other exhibits of gas and oil lighting and heating materials include collections of the manufactures of well-known makers, but embrace nothing that is very novel. Price's Patent Candle Co., Limited, Belmont Works, Battersea (768), have an artistically arranged collection of candles, night lights, and tapers, and a selection of their well-known toilet and antiseptic soaps. Messrs. J. & C. Christie, 453, West Strand (773), are the agents for Wright & Butler's oil cooking-stoves, whose distinguishing merit is that they are fitted with movable burners, which can be taken out and a fresh wick fitted as easily as in an ordinary lamp burner. The exhibit of the Albo-Carbon Light Co. (Limited), Horseferry-road (772), deserves mention, not because there is anything novel in it, but because the invention adds much to the illuminating power of gas, and reduces its consumption, in these ways playing a great part in securing the health of the household. It is worth noting that the last extensive order of the company was for fitting with their lights the Oratory at Brompton. Some handy little oil cooking-stoves, known as Reppingille's patent, are shown by the Albion Lamp Co., Birmingham (775). Cooking by oil is not, we know, looked upon with much favour, but these stoves seem to rob oil cooking of its terrors.

Several systems for the application of electricity to household purposes are shown in this class, but they have no concern with the special subjects in which the readers of these columns are interested.

CLASS XXVII. (Fire Prevention Apparatus).—The matters treated of in this class, again, though of the widest importance, have little bearing on sanitary and hygienic questions. Besides exhibits of fire-proof safes, fire-engines, and fire-hose from the leading houses, this class contains one or

The Association for the Supply of Pure Vaccine Lymph, formed 1877, 3, Hemmings-row, St. Martin's-lane, London, W.C.; near Charing-cross Telegraph Office, 448, West Strand, W.C. Sole agents for Dr. Warlomont's Calf Vaccine.—[Advt.]

two ingenious inventions for ensuring the escape of the inhabitants of a burning house. The first is that of Mr. J. Kennedy, Thrabane, co. Tyrone (776). This fire-escape consists of two parallel ladders, telescopic in construction, which enables the operator to adjust them to the height of any window from 24 ft. to 50 ft. These are supported on wheels 7 ft. 6 in. in diameter, in the vicinity of which is a piece of machinery which puts in motion or checks the work above. On each of the upright ladders is fixed in grooves a chair or cage capable of holding five persons. When one is filled at the top, the other is empty at the bottom; and as the filled cage descends, its motion being regulated below, the empty cage is drawn up to be filled. No. 2 is then filled, and begins to descend, while No. 1, which has just been emptied, is drawn up again at the same rate of speed as the other comes down. On each side of the ladders, working in a single and narrower groove, is a smaller cage, which can be drawn up to any elevation necessary. In these two cages are men directing the hose. Each has two hoses, which he fits into swivels so as to move like Gatling guns in any direction to play upon the fire. The cage filled with people is brought down, the empty one going up at the same time, while outside of these the firemen stand in their cages directing the hose. Some recent experiments with this invention have, we are told, been attended with much success. It certainly has one considerable merit, viz., that it is worked by those engaged in extinguishing the fire, and is not controlled by the terror-stricken people in the burning building. Another domestic fire-escape, exhibited by Mr. E. H. Hale, 16, Cullum-street, Fenchurch-street (783), consists of a large canvas bag, which is worked from the window. It is independent of screws or nails, and is supported by two upright iron rods resting merely upon the outside of the window-sill, and a parallel bar resting against the inside of the window frame. A third, exhibited by Mr. Wm. Perry, 66, Bridge-road, West Battersea (790), consists of a flexible steel ladder, which, when not in use, will fold up beneath a table standing at the window of an upper room, and, when a fire occurs, needs only to be thrown out of the window, when it hangs like a rope-ladder down the house wall. A number of portable fire-extinguishers are also shown in this class.

Class XXVIII. (Materials for Sanitary House Construction, Roofs and Walls, Damp Solid Floors, Damp-proof Wall-coverings, Cements, &c.).—Once again we enter a class which has a *raison d'être* in a health exhibition. The first stand (797) is that of Messrs. Chambers, Monnery, & Co., 41, Bishopsgate-street Without. A section of a hollow brick wall, showing the firm's patent cast and wrought iron wall-ties, is built here. Hollow walls, bound in this manner, have considerable hygienic advantages over a solid mass of brickwork, ventilation being easier, and the entrance of damp to the houses being almost entirely prevented. Some cheap useful baths, kitchen sinks, ranges, and mantel register-stoves, admirably adapted for artisans' dwellings, are also shown.

The Midland Rustless Iron Co., Wolverhampton, have a very attractive stand (797), illustrating the various uses to which their "Kangaroo" enamels can be put in house decoration. The enamel is placed on the "Bower-Barff" rustless coating, which gives the iron a double protection. The enamel is cheap, tough, and does not chip; and it gives a handsome decorative effect to ceilings, walls, &c., at a much less cost than enamelled tiles. The enamel may also be applied to wood, and, in a non-decorative form, is a cleanly and healthy lining to baths, cisterns, filters, and such-like domestic articles. The "Kangaroo" enamel ought to become very popular. The Crystal Porcelain Pottery Co. (Limited), 17, St. Bride-street, E.C. (799), has an attractive collection of vitreous tiles, white and coloured, glazed and unglazed, for walls and floors.

An ingenious contrivance is exhibited (800) by Mr. R. Helbronner, 300, Oxford-street, for the exclusion of draughts. It consists in a flexible cotton tube, which fits in a groove made on the inside of the beading of the window-sash, or, in the case of doors and French windows, on a patent beading, on which is fixed a strip of felt, which prevents the wind entering from underneath. The price of the tubing is only 3d. per foot, and it has the great advantage of being flexible without displacing the sashes or doors.

Messrs. Charles Drake & Co., Railway Wharf, Battersea Park (804), show their specialities in constructive and decorative concrete. Among others are marble concrete baths, window heads, copings, terminals, steps, fireproof doors, floors, staircases, wall tiles, and a great number of other ornamental and useful building forms. This firm also exhibits a concrete building apparatus. The dovetailed self-fixing building slabs and the marble and granite facing bricks are worthy of notice. The marble concrete has a very agreeable tone and texture, and is susceptible of a considerable amount of polish. The white marble concrete of this class—shown in the form of a set of steps—has a most agreeable surface and texture, the two whites of the marble and cement combining to form a general pearly-grey tone. Messrs. Drake's encasement of structural iron-work in fireproof concrete is used in many of the large London and provincial theatres, and, so far, has given complete satisfaction, both as regards its durability and its fire-resisting properties.

Another system of fireproof building is shown by Hitchins' Fireproof Plastering Company, Gresham-buldings, Basinghall-street (808), their stand consisting of a specimen of a half-timbered building, illustrating the application and advantages of their system of resisting fire and staying the transmission of sound, and of preventing damp. It has stood a fire test very successfully, and as ceilings so formed are in one solid piece, they can stand vibration caused by the continual moving of heavy bodies without giving way or cracking as ordinary ceilings are apt to do. There are other advantages, too, connected with this system, such as the speed with which the work can be done, and the doing away with the extra supports which concrete walls and floors demand.

Yet another form of fireproof construction is shown by Mr. Archibald D. Dawney, King William-street (809). B this system the floors and roofs are constructed wholly o wrought iron, embedded in cement concrete. The floors and roofs of over 1,000 buildings in various parts of the country have been fireproofed during the past twelve years on Mr. Dawnay's system, and notably amongst the number recently completed are the "Queen Anne's Mansions" (south wing), St. James's Park, having thirteen completely fireproofed storeys and roofs, containing nearly 400 rooms and twenty-four corridors; and the extension of the Charing Cross Hotel, consisting of six stories and roof, containing over 100 rooms and six long corridors.

Messrs. Vigers Bros., 214, Pavilion-road, Sloane-square (811), show some specimen flooring, made of Swedish deal, as supplied by the firm for some time past to the London School Board. The importers of this flooring claim for it some solid advantages over the ordinary wood flooring, both as regards cheapness and durability. The blocks are laid to herring-bone pattern, the grain of the wood running as in other parqueterie and not as in wood-paving, on a concrete bed, floated over with a thin layer of Stockholm tar,

a little of it being scraped into the joint with the block as it is laid—no other fixing being found necessary. They are quieter than a hollow-boarded floor, and less inflammable, as there are no spaces to cause a draught; are cleaner than block flooring with the end of grain exposed; are cheaper than the usual parqueterie, but have a very good effect, and are very durable.

The well-known Val de Travers Asphalte Paving Company (Limited), Palmerston-buildings, Old Broad-street (812), exhibit asphalte in its raw and manufactured state, and the refined bitumen used in its manufacture, together with models showing the various uses to which this preparation can be put in building and on pavements. Its efficacy as a preventative of damp in houses, which does not seem to be yet as fully recognised as might be desirable, is also illustrated at this stand.

Mr. George Evans, 1, Adelaide-street, Charing-cross (814), sends specimens of his solid wood staircases and floors, fireproof and sound proof. It is well-known that wrought-iron columns when heated become soft and yielding, and that when made of cast-iron they become brittle in case of fire, and are likely to snap when cold water is poured upon them. Mr. Evans, therefore, advocates a return to timber construction, and the system here exhibited consists of forming the floor of solid timbering instead of the ordinary joists and floor-boards. The floor is, in fact, all joists, which are laid close together, side by side, and either spiked or screwed through as the laying progresses, so as to form a compact solid mass of timber, capable of resisting the action of fire for a greater or less time. An additional protection is afforded by a thick coating of plaster, which forms the ceiling the plaster being held up to the underside of the joists either by half-driven nails or by dovetailed grooves in the wood. Staircases are similarly constructed, the timbers forming them, however, being of lighter scantling. The system of close timbering is not unknown in the United States of America, where railway stations and grain elevators are sometimes constructed of thick timbers spiked together with the view of reducing the danger of fire in that class of buildings. It is obvious that such floors must be costly, but the inventors claim that, "taking into consideration the saving effected in the whole building, by the roof and the use of thinner walls, it will be found that this system, though offering security from the spread of fire, is very little, if at all, more costly than any other system of fireproof construction in use."

A flooring prepared by paraffin dressing, and adapted for hospitals and other large buildings, is exhibited (818) by Mr. Thos. Jennings, 46, York-road, Lambeth. The idea was suggested by Dr. Longstaffe, and commended by Prof. de Chaumont, Mr. Ernest Hart, and Mr. W. Eassie; and, under the direction of the latter gentleman, Mr. Jennings has laid several large floors in this manner. The paraffin dressing, which renders the wood impervious and non-absorbent, is hot-ironed into the pores and tissues of the wood, and the surface is finely polished. No nail-holes are shown on surface when fixed, and the solid rabbetted and tongued joint, from its formation, when charged with the paraffin, is perfectly water-tight. The dressing, it should be added, is non-inflammable. Mr. Jennings also shows a model of an improved disinfecting apparatus for wearing apparel, bedding, &c., for which a patent has been applied. This apparatus is made of iron, and consists of an outer shell covered with asbestos, and an inner shell of less depth and width of bottom, widening upwards, leaving a clear and uninterrupted space between. Near the top of inner shell, numerous small openings are made. Gas jets are placed below the bottom, the heat from which disperses round the sides and through these openings into the interior, producing a uniform current of heated—but unburnt—air. Atmospheric burners are used to prevent the production of smoke. The interior is fitted with racks and rods for bedding and articles of clothing, and an air-pipe with sliding valve is provided for the escape of any vapour, the top of the apparatus being closed with lids balanced by weights. Some experiments which have been carried out with this new form of disinfecting apparatus have been such as to give the inventor every hope that it will commend itself to the governing bodies of hospitals and sanitoriums as well as to the proprietors of hotels and schools. Linen, flannel, &c., were subjected to 320 deg. of heat, and muslin to 300 deg., without sustaining any damage, &c. Bedding and mattresses were not only purified but improved, as the heat caused the filling to expand, and thus saved the trouble of re-making. An apparatus of the following dimensions—7 ft. 4 in. long, 3 ft. 4 in. wide, and 3 ft. 4 in. deep (outside measurement), produced 280 deg. of heat in twenty-five minutes, with a consumption of 70 ft. of gas; this is generally acknowledged as the maximum amount of dry heat required to destroy even the ova of insect life. Three hundred and fifty degrees can be obtained in fifty-five minutes at an expenditure of 150 ft. of gas.

Mr. Charles Langstaff, M.D., the Châlet Basset, Southampton, sends (819) the model of a floor prepared with paraffin in much the same way as that noticed above, and in order to show its durability exhibits a portion of a floor, so treated with paraffin, that has been laid and exposed, winter and summer, in a south-west bay window for ten years, and which is still in excellent condition. Dr. Langstaff also shows a model of an almost perfect disinfecting chamber, with bath and lavatory attached—such an apartment, indeed, as ought to be used by every nurse who has been treating an infectious case. Side by side with this is another simple but effective appliance for cleansing the air of a sick chamber and charging it with medicated vapours.

The "Adamantine Clinker," for producing a solid, sanitary floor, is shown (821) by Messrs. Towers & Williamson, of Bytham, Stamford. The clinkers allow of no absorption or vegetation. They are less slippery than vitrified paving, and are admirably adapted for the floors of stables, lairs, abattoirs, kennels, markets, and other like places. Another flooring in this class is known as the "Ligno-Concrete," and is exhibited by Messrs. Clarke, Bunnett, & Co. (Limited), 90, Queen-street, E.C. (824). This flooring consists of a complete mass of iron concrete and wood, and whilst giving an ordinary floor board surface, is practically uninflammable. Its solidity and indestructibility give this flooring sanitary as well as other advantages over the ordinary board floor.

Messrs. A. Dreyfus & Co., 19, Edmund-place, Aldersgate-street (826), are the London agents for M. Ligny's process for the immediate drying of new houses, buildings, &c., so that they can be decorated and papered immediately without danger to health, for drying old buildings where the dampness arises from contact with wet soil, and for drying thin walls exposed to the weather. The process consists of the concentration or current of hot air on the walls by means of movable cylinders till, in three or four days, a house may be carefully dried. The system is well-known to leading architects, and has received the high encomiums of several French officials, including the architects of the Préfecture of the Seine and of the Préfecture of Police of Paris.

Messrs. Fox, Jones, & Co., Perren-street, Ryland-road, S.W. (827), are agents for "silicate cotton," or "slag wool," and exhibits models showing its application for fire

and sound proofing, and for preventing the transmission of either heat or cold. "Silicate cotton" is a glass-like fibre, blown from blast furnace slag. It is perfectly incombustible, and from the manner in which it harbours atmospheric air in finely bisected air-spaces, affords a perfect resistance to the passage of rarified air, influenced by either heat or cold, and has also the effect of breaking up and destroying sound-waves. It has the advantage, moreover, of being very light, one ton covering an area of 1,800 square feet one inch thick, and, unlike the fireproof concrete and sound-proof pegging generally used, it is put down dry, thus doing away with the objectionable dampness of the others. Being produced direct from blast furnaces, "silicate cotton" is not an intermediary for carrying the seed germ of any kind of insect, and is altogether impervious to the attacks of rats, mice, or other vermin. It is likewise used for a variety of purposes, where it is necessary to prevent the transmission of heat or cold—viz., covering steam-boilers and pipes, hot and cold water-pipes, cisterns, refrigerating chambers, &c., &c.

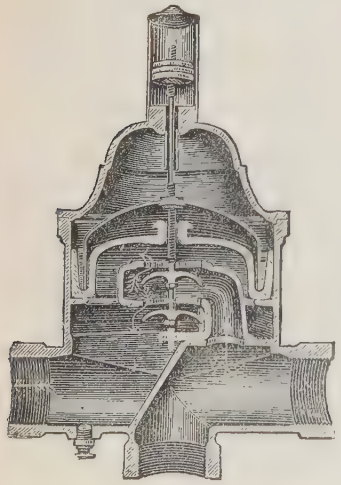
Specimens of wood, canvas, &c., prepared by Mr. Wm. Burnett's patent process are exhibited (828) by Mr. W. H. Bateman, 90, Cannon-street, E.C. These articles are preserved and rendered uninflammable, the process being particularly adapted for railway sleepers, &c.

Mr. William White, Abergavenny (stand 830), exhibits his very favourably received and largely used "Hygeian-rock building composition" specimens of walling and water-tanks, constructed with its aid, impervious wall-lining, and an improved method of building walls to render them damp-proof, and to increase their strength. A portion of a brick wall *in situ* is shown, in which the courses are treated with this composition; and, as a test of its strength, a weight is suspended of such a trying character as might be reasonably supposed to crack or tear the brickwork asunder. But it remains stable under the severe test. The advantages in using this composition are that by its aid, walls one brick thick can be substituted for walls two bricks thick, the former being as strong, if not stronger, than two-brick walls constructed in the ordinary way. The composition is also applicable in the construction of reservoirs and tanks, swimming-baths, gas-holders, sea-walls, dock-walls, and silos for ensilage. The composition may be safely pronounced a good damp-proof material, and in every way worthy of extended use. On the score of cost, too, there will be a saving in the use of this composition.

The Reed Lathing Co., 5, Great Tower-street (833), send specimens of their patent webbing made of reed, and used in substitution of fir-lathing, and show partitions and ceiling formed of same, in different stages of preparation. The advantages claimed for this webbing over the ordinary lathing are durability, material economy, easy and rapid fixing, deadening of sound, freedom from cracks, and equalisation of temperature.

This class also contains several exhibits from encaustic and enamelled tile-makers. In every case they may truly be said to be remarkable for their artistic excellence; but they present no new features of a sanitary character to which we need to call attention.

Professor Tweedy, in addressing the students of University College, London, advised his listeners not to forget that diligence and industry will make up for many intellectual inperfections. The student must train his senses, his understanding, and his reason, and have all his faculties under the governance of a resolute and vigorous will. "All our knowledge," said Kant, "starts from the senses, goes on from them to the understanding, and ends with Reason, than which nothing higher is found in us, either to work up the material which we derive from the intuitions of sense, or to evolve the highest unity of thought." To be, then, useful and accomplished men, it was necessary to engage in those exercises which would train the external senses, cultivate the understanding, and refine and ennoble the reason. The medical curriculum embraced studies adapted to each and all these purposes. There were two extremes to be avoided; both equally dangerous, though in different ways—working too much was almost as bad as working too little; perhaps of the two the more grievous damage was done by excess. Literature, music, the drama, the fine arts, and the society of persons of refined, though simple, tastes, afforded abundant opportunities for instruction and amusement, and facilities for the best æsthetic culture. Out-door exercises, as walking, riding, boating, cricket, and volunteering—whether in the service of Mars or Hygeia, to shoulder the rifle or attend the ambulance—would invigorate the body, refresh the mind, and repair the damage which the student's growing frame sustained in the noxious atmosphere of hospital, laboratory, and dissecting-room. These exercises, too, supplied the only opportunities of witnessing and admiring the natural beauty of earth, and sky, and sea; the variegated hues of gem and flower; the painting of insect, bird, and beast; the brightness of sunshine, the iridescence of the rainbow, the rippling of the shallow stream, the sheen of still water, the flash and roar of storm and tempest.



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Sanitary Institute of Great Britain, Glasgow, 1883. Star Certificate. This Certificate is the Highest Award, and only obtainable by those who already hold the Medal of the Institute.
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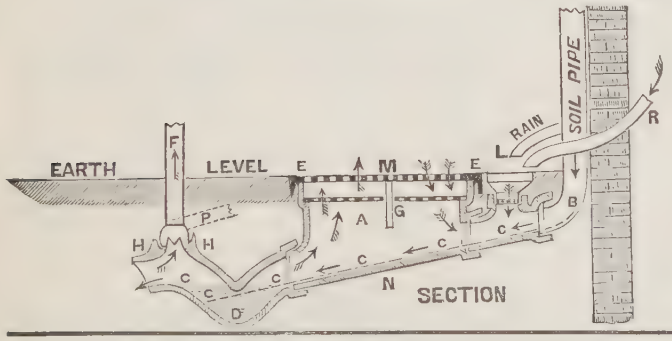

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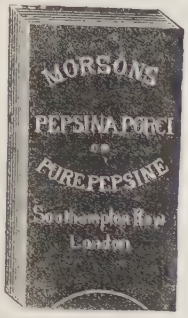

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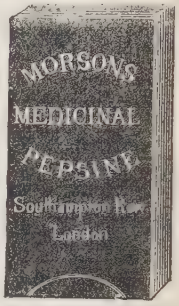

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TWENTY-SECOND NOTICE.

GROUP III.—THE DWELLING-HOUSE.

CLASS XXIX. (Materials for Sanitary House Decoration, Non-poisonous Paints and Wall-papers, Floor-covers, Washable Decoration, &c.).—This large and varied class includes exhibits from most of the great carpet and floorcloth manufacturers, and from makers of various articles which scarcely come within the province of these notices. First, in a sanitary point of view, and starting at the commencement of the class, to be mentioned are the ceramic, encaustic, mosaic, and ornamental tiles shown by Messrs. Craven, Dunnell, & Co., Jackfield Works, near Ironbridge, Shropshire (844). Both for public buildings and for the household the products of these works may be recommended alike for beauty, durability, and healthfulness. Another Jackfield firm (Jackfield, it appears, is the oldest seat of the tile trade in Shropshire) enters into dangerous rivalry at the next stand (845). Here Messrs. Maw & Co., of the Benthall Works, have an admirable selection of tiles for pavements, wall-linings, bath-rooms, &c. A novelty in floorcloth is shown at the adjoining stall (846), occupied by the Scarborough Mosaic Floorcloth Company, for whom Messrs. Hutchinson & Co., 51, Fann-street, Aldersgate-street, act as agents. This is a new pavement-like floorcloth made in mosaic blocks, the colour and design of which are solid through to the canvas, and, therefore, cannot be effaced until the fabric is completely worn out. The Rees Patent Glass Tiles with Stone Backs, for decorative and sanitary purposes, shown (850) by Messrs. S. Jeffreys & Co., 97, Falcon-road, Battersea, ought not to escape a word of commendation.

Side by side are three exhibits of non-poisonous, and in two of the cases, washable wall decorations, which should command attention. First of all (851) comes the Embossed Tapestry Co., 123, Milkwood-road, S.E., who show some very pretty samples of a new patent indestructible and sanitary wall decoration. Next in point of order, but first in point of instructiveness, is the stand (852) of Mr. Henry Carr, 21, Cedars-road, Clapham, who shows specimens of arsenical wall-papers, and samples of papers of similar and even purer designs and colours in which no arsenical or other dangerous pigment has been used. He also exhibits apparatus for testing wall-papers for arsenic; tables of the results of tests of various articles; and samples of materials which have produced injurious effects. This stand ought to receive general attention, as much for the excellence of the sanitary papers shown, as for the care with which the exhibition has been prepared. The last of the two is (852) Mr. Thos. Hall, 8, George-street, Edinburgh, the maker of a new wall decoration called "Corvellum." It is claimed for this material that it is not affected by the vapours of gas, that the colours are not rendered volatile by the temperature of heated rooms, that it is not affected by damp, and that it is thoroughly washable. A great deal of care is apparently exercised in its manufacture, and we are assured that no deleterious pigments are used. Even if they were, indeed, they could do no harm, for the colours, which are made to unite intimately with the fibre of the ground, are coated with Perseine enamel. The artistic effect of "Corvellum" is, we ought to add, very pleasing.

Messrs. Wardle & Co., 71, New Bond-street (854), whose aim, we are told, "is to place immediately before the public the results of a lengthy experience in the development of that which is true and artistic in fabrics, whether for dress or household decoration, with an avoidance of all that is bad and spurious in colour, form, and material," have a very choice collection of fabrics, wall-papers, &c., in which the dyes used are non-poisonous, and in the case of the former articles, purely vegetable in their nature. In addition to the products of the Indian looms, Messrs. Wardle's connections in Leek supply them with silks and embroideries of home manufacture. Messrs. Rottman, Strome, & Co., St. Mary-axe (855), have a gorgeous and, to the Western mind, somewhat *bizarre* exhibition of Japanese wall-papers made of wood fibre, which may be relied upon as being washable as regards texture and non-poisonous as regards colour. Sanitary washable non-poisonous paper-hangings are also shown by Messrs. Heywood, Higginbottom, Smith, & Co., Hyde-road Works, Manchester (856), and Messrs. Jno. Allen & Son, Wick-lane Works, Old Ford-road, E. The latter firm also direct attention to their papers, the patterns of which contain no less than fourteen colours, which are manufactured by steam machinery. Good cheap non-poisonous wall-coverings are much wanted for working class houses, and it is only by producing them at this rapid rate that this demand can be supplied.

No visitor to this class can fail to be attracted by the exhibition of Messrs. Jeffrey & Co., 64, Essex-road, Islington (859), manufacturers of artistic wall-paper, free from arsenic. Their wall coverings are now made washable by a new patent process, and the exhibition of this firm includes many beautiful samples of hand and machine printed decorations, painted flock-papers, lacquered golds, and embossed leather-papers, hand-painted. The immense variety shown may be estimated from the fact that the prices range from 1d. to 12s. 6d. per yard. The five beautiful sections in which the exhibition is divided, include designs by Messrs. A. F. Brophy, Walter Crane, J. R. Harris, W. Scott Morton, W. J. Muckley, A. Silver, J. D. Sedding, T. W. Sharpe, and the late B. J. Talbert. The Bartolozzi decoration in Wedgwood blue in the first section, the examples of hand-painting in the fourth, and

The ASSOCIATION FOR THE SUPPLY OF PURE VACCINE LYMPH, formed 1877, 3, Hemmings-row, St. Martin's-lane, London, W.C.; near Charing-cross Telegraph Office, 448, West Strand, W.C. Sole agents for Dr. WARLOMONT'S Calf Vaccine.—[ADVT.]

the bath-room decoration and the frieze of children skipping (both by Walter Crane) in the fifth, are particularly worthy of admiration. The second section consists of varied treatments of patterns in relief. Examples are given of "raised flocks," in which the design can be raised to any thickness by the application of flock to a distemper ground, the entire surface being painted in oil, after the paper is hung. In the other specimens the relief is obtained by stamping; the oil colour being either printed or painted by hand, or, if preferred, the material can be supplied simply stamped, ready for the decorator to paint after being hung upon the walls. In the third section the embossed leather papers are (with the exception of the "Peacock" and "Arbor Vitæ" patterns by Walter Crane, and the "Poppy" by T. W. Sharpe) reproductions of old leathers, and, like them, are hand-painted. The process employed in their manufacture is almost identical with the originals, and there is, therefore, every reason to believe that the gliding will be equally as permanent. They are perfectly washable, and in this respect alone are very superior to many of the French and Japanese stamped papers, which are merely finished in spirit varnish and distemper colour. The same designs can be used for real leather; and an example is given side by side with that of their usual manufacture. Specimens of printing in lacquer on a lacquered metal ground are also exhibited. These are equally as washable as the stamped ones. The firm also exhibit fourteen blocks required for printing (by hand), the four figures constituting the design in the nursery frieze referred to above; and a set of seven rollers used for printing one of their cheap wall-papers by machinery. With these latter they have up to the present time printed about 460,000 yards of the Daisy pattern.

Hard by is the stand (860) of a firm which we may say with truth has done more than any other to promote the use of non-poisonous wall-coverings against every class of the community — the firm, namely, of Messrs. Wm. Woollams & Co., 110, High-street, Manchester-square. Up and down this exhibition we have come across several stands whose walls have been decorated by Messrs. Woollams, but here, on their own ground, the firm show what they can do in the way of artistic wall-coverings. Messrs. Woollams are the original manufacturers of non-arsenical wall-papers, and so strictly have they adhered to their rule in this respect, that when on one occasion they were betrayed by the false representations of a colour-dealer into using pigments containing poisonous ingredients, they had the whole manufacture of paper in which that particular colouring matter was used destroyed. Apart from this point, the general excellence of Messrs. Woollams' productions are so well known—the firm, indeed, standing at the very head of the trade in this respect—that it would be a waste of time were we to dilate upon it. This particular stand, therefore, is all we need concern ourselves with. The outer side of the return-end of their stand is covered with the "Tree," a pattern of foliage, flowers, and birds on a bright green ground, especially exhibited as an example of brilliant colour free from arsenic. A historical interest attaches to a small frame which is hung picture-like on this paper, and which contains specimens of the original green papers free from arsenic, manufactured by the firm in 1859. At that time the health-knowledge of the people was very limited, and Messrs. Woollams had not the powerful incentive of a popular movement in favour of sanitary reform to encourage them. Nevertheless, they continued in the course they had marked out for themselves; and if anybody should be doubtful as to the permanence of non-arsenical colours, a visit to this stand will dissipate his fears, for these papers are nearly as fresh and bright in appearance now as they were when they were first turned out of Messrs. Woollams' factory. The beautiful embossed flock papers for which this firm are famous, dado decorations, raised flock ceiling-papers, and a variety of wall-coverings of every design, are contained on the walls of this stand, where is also exhibited the collection of wall-paper designs of Messrs. Watts & Co., drawn and coloured by Messrs. G. F. Bodley, Thomas Farmer, and Gilbert Scott, and the collection of private designs for wall and ceiling-papers of Mr. Jno. Aldam Heaton, for whom Messrs. Woollams are agents and printers.

Passing now to an exhibit of a very different class we come to the stand (864) of the United Asbestos Company, 161, Queen Victoria-street, who show their non-poisonous and sanitary asbestos paints for house, infirmary, and general decoration; specimens of raw Italian asbestos, ropes for fire-escapes; cloth for firemen's clothes, blankets, &c.; and mill-board for fireproofing floors, partitions, &c. The sanitary advantages claimed for the first-named exhibit are very noteworthy. Asbestos is, without doubt, one of the most perfect insoluble fire and acid-resisting products known to commerce, and this non-poisonous paint, though not so completely indestructible as the fire-proof paint, has this advantage over ordinary colours that it is absolutely innocuous from a health point of view, whilst comparing favourably in every other respect with the ordinary paints in the market. Prof. Barff, of Cambridge, says of these products: "I have examined and analysed specimens of the Asbetos Non-poisonous Paints manufactured and sold by the United Asbestos Company (Limited), of 161, Queen Victoria-street, London, and Birmingham, and found them to be of excellent quality. They do not contain anything deleterious or of a poisonous nature, such as arsenic or lead in any injurious form, and may be used, so far as health is concerned, with perfect safety. Although mixed with oil or varnish, they resist the action of flame, but not so completely as the Asbestos Patent Fire-proof Paints, patented and manufactured solely by the same company. These paints also are not in the slightest degree injurious to health, or to the wood. They dry rapidly, set hard and firm, and render wood quite uninflammable, and are a very good disinfectant." The absolutely fire-proof paints manufactured by the firm are too well known to need much comment at our hands. A small fire which occurred at the Exhibition a few months ago proved its efficacy, which was still more strongly manifested at some recent experiments at Rotterdam. There a wooden shed was built, and divided into two partitions, one covered with Asbestos fire-proof paint and the other left in its normal state. A strong fire was built, and after the unpainted half had been quite consumed, that covered with Asbestos paint was found to be almost in the same condition as before the fire was lighted. It will be seen from this that Asbestos is, too, peculiarly well suited for firemen's equipments, and the company's Asbestos cloth gloves are particularly adapted for electric light work. Asbestos for packing purposes is well and favourably known to owners of machinery; for filtering or straining chemical liquids, especially those of a corrosive nature, Asbestos cloth is particularly adapted, owing to its power to resist the destructive properties of acids, alkalis, and other chemicals, and as fuel for gas fires Asbestos is positively unequalled. Indeed, the beneficent uses to which this product may be put are almost innumerable. It should be added that with a view to meet the requirements of those customers to whom cheapness in first cost is an object, the company now supply Canadian Asbestos millboard, packing, &c., at from 15 to 30 per cent. less than those of the Italian material.

The latter, however, remains by far the most superior, and therefore in the end the cheapest article.

Messrs. H. Thompson & Co., 95, Merrow-street, Walworth (865), exhibit a paint largely composed of magnetic oxide of iron. It is a well-known fact to chemists that the magnetic oxide of iron ($Fe_3 O_4$) is not attacked by rust; thus a paint composed of this oxide would be a good and sure preservative for iron. But the difficulty hitherto experienced in producing a paint of this material has been to get it in cheap and sufficient quantities. The Oxide of Iron ($Fe_2 O_3$), such as is used in the manufacture of ordinary Paints, is nothing more than coloured earth, containing iron in such a form that when the oil is absorbed or evaporated, nothing remains but the coloured earth, which is easily acted upon by the atmosphere and acids, and scales off, thus leaving an unprotected surface, upon which rust is quickly formed, offering no protection to the material it has covered. The makers claim that this paint, by forming a complete coating of magnetic iron, renders walls absolutely impervious to damp; that by its freedom from acids and white lead it has a great sanitary superiority over other paints; and that it is affected injuriously by neither great heat nor frost.

Another patent paint is that shown (869) by the Silicate Zopissa Composition and Granitic Paint Company, 45, Fish-street Hill, E.C. Tke Silicate Zopissa Composition is a washable distemper, made in all colours, and is designed to render damp-proof and durable the surfaces to which it is applied. The effect produced when used for internal decoration is much the same as fresco, and the damp-proof qualities of the composition are shown by means of bricks and bath-stone treated with it and covered with a layer of water. Iron, wood, and granite painted with the "Granitic Paint" are likewise shown. This paint is unaffected by the most extreme climatic condition, and is therefore peculiarly suitable for tropical or cold countries. The other exhibitors of non-poisonous and other paints include Messrs. A. J. Scollick & Co., 27, Mincing-lane (872), makers of a non-poisonous mastic paint, and joint-making mastic; the Indestructible Paint Company, 27, Cannon-street, E.C. (870), who send sample models coated with Browning's patent preservative and washable paints, and J. Browning's invisible preservative solution for waterproofing purposes; Mr. G. C. Pulford, 77, Cannon-street (879), who has two models of lath walls, both kept damp, the one covered with his damp wall-paint, made from pure iron, remaining perfectly dry on the inside, and the other presenting a thoroughly sodden appearance, with the paper peeling off; the Torbay and Dart Paint Company (Limited), 23, Great George-street, Westminster (881); Messrs. A. Leete & Co., 129, London-road, Southwark (885); and Messrs. R. Gay & Co., York-road, City-road (886), makers of the impenetrable paint used in painting the Kew conservatories, the pillar letter-boxes, the National Society's life-boats, &c. Several manufacturers of wood-stains are also exhibitors in this section.

Class XXX.—(Objects for Internal Decoration and Use in the Dwelling; Fittings and Furniture).—The first noticeable exhibit in this class is that of Messrs. A. Gardner & Son, Glasgow (888), who show a patent spring-mattress of new and satisfactory design. It consists of parallel spring laths, of oval shape, built on coppered springs, put together simply with four leather straps and buckles. When rolled up this mattress measures about 2 cubic feet, and weighs only 36 lb. This mattress prevents rust, gives great freedom of movement, makes hollowness in the middle impossible, and, by preventing unevenness, saves the wear of the bed or mattress above. Taken altogether, it is a very sensible addition to our sleeping comforts. The London agents are Messrs. Evered & Co., 50, Holborn-viaduct.

Messrs. Chorlton & Dugdale, 19, Blackfriars-street, Manchester (891), show the "Excelsior" mattress as applied to beds, couches, and chairs of every description. This mattress is a strong steel mesh, and forms an easy, yielding, and luxurious surface, without the heat or stuffiness frequently experienced in upholstered goods. Their thorough cleanliness, also, is another great point in their favour.

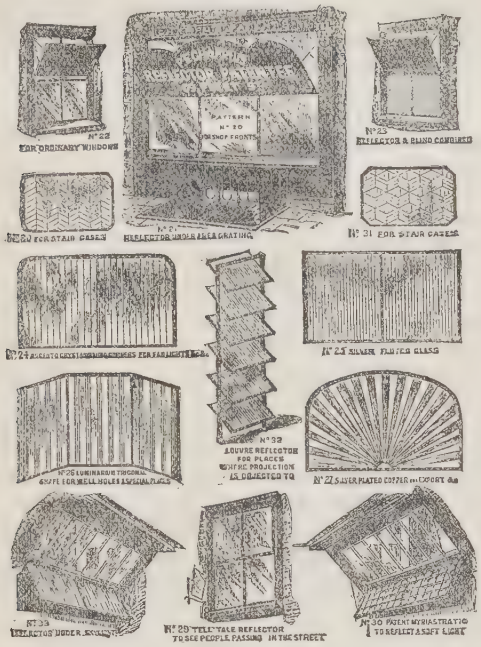
Messrs. B. Hembry & Co., 16, Newgate street, E.C., show (889) a model of stairs fitted with their india-rubber stair clips in combination with linoleum, and another fitted with their patent stair tread. Both are made of india-rubber; and, as they give a firm tread, are useful to prevent slipping on stairs where there is a large amount of passing to and fro. Another stair pad, made of granulated cork, is exhibited by Messrs. Parker, Smith, & Parker, 117, Curtain-road, E.C. (894), who also show their patent "Ambidexter" patent box ottoman couches, a very convenient article of furniture. The hinges are so made that the seat or lid can be opened from either side, thus allowing the couch back to be formed at either side, the head-scroll may be adjusted to almost any angle, and the lid may be opened independently of the back. An ingenious arrangement is shown (910) by Mr. Jas. P. Norris, 86, South-street, Walworth, for excluding draughts for a person sitting in a chair. A brass rod runs up the back and supports another semi-circular rod, upon which a sort of curtain is fitted, which may be drawn round the sitter so as to almost completely cover him.

Amongst the numerous exhibits of bedroom furniture, that of Messrs. Ellington & Son, 13, Friday-street (913A), should be noticed. It consists of a sanitary ventilated down quilt. The want of ventilation has always been the one drawback in the use of these luxurious bed-coverings; but this invention removes this one objection. The result is attained by the introduction of simple perforated double-eyeletted studs, which, without making any perceptible difference in the temperature, allow the exhalations from the body during sleep to escape from the bed. Experiments made to test the invention have been of a most satisfactory and convincing character. A kind of steam bath was improvised, and a quilt of the old kind and one of the ventilated ones were subjected to its action, a large sheet of looking-glass being placed above them. From the unventilated quilt not a particle of film was observed upon the glass; but, with the new invention, exhalations were freely given off, yet the loss of warmth with the ventilated quilt was very small, amounting to only about 2 deg. Fahr.

Messrs. Stewart & Co., 124, Newgate-street (918), have an extensive selection of bedding and upholstery, including Howe's patent bedding and mattresses. These latter are made of wooden laths each hung on a separate spring, thus permitting full movement and giving complete isolation to each sleeper. Howe's spring bedstead is another very clever contrivance, forming a sofa by day and a bed by night, and, whichever way used, combining luxury with a handsome and finished appearance. Folding cribs with horizontal bars are also shown by this firm. Apropos of cribs, we must mention one shown (912) by Mrs. Washington Moon, 164, Regent-street, which has a protecting canopy, making it impossible for the child to fall out or for a cat or even mosquito to enter in—this, too, without interfering in the slightest degree with the ventilation.

An attractive-looking stand is that (893) of Mr. Paul Emile Chappuis, 69, Fleet-street, the well-known maker of daylight reflectors. A model room is here erected for the purpose of showing one out of the many methods in which

this system of reflection may be applied, viz., for enabling a person to read in bed whilst lying in any desired position, and to havea good strong light reflected on his books or papers. But, indeed, the reflectors Mr. Chappuis makes are most numerous and varied in their styles, and the accompanying illustration will show the different methods in which his principles are applied both to the reflection of daylight and of gas-light. The use of reflectors in the daytime is especially to be commended, particularly in confined City offices and places of business. The danger to health and to eyesight caused by the inordinate and, as Mr. Chappuis shows, unnecessary consumption of gas in crowded offices and warehouses is appalling. From an employer's point of view the health of his clerks and workpeople and real ultimate economy are interchangeable and synonymous terms, so that there is the strongest pecuniary inducement to the use of such inventions as these, to say nothing of the saving of gas that results from their adoption.

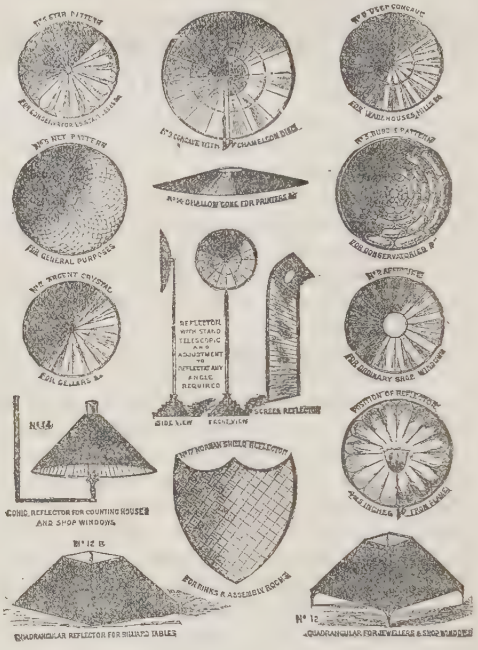


In this, as in the former class, are several specimens of wall-decoration, prominent among them being those of the well-known Lincrusta-Walton Company, 184, Oxford-street (913), and the Willesden Waterproof Paper and Canvas Works (Limited), 34, Cannon-street (914).

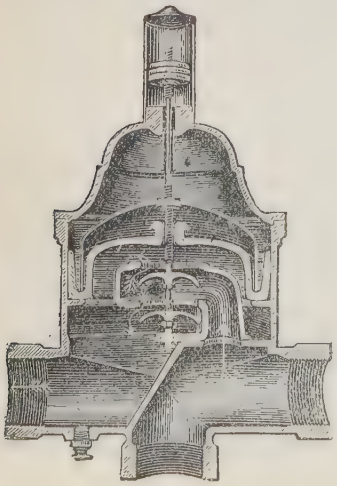
The aloe plant is being grown largely in St. Helena.

The Manufacture of Teeth.—It is said that the tooth manufacture of the United States amounts to 10,000,000 teeth per annum. The value of these teeth is a million dollars. The materials of which they are composed are feldspar, kaolin, and rock crystal. There are twelve manufactories, but one of them, founded in 1864, makes half the number.

Viennese bread, says *Notes and Queries*, is celebrated.



The excellence of the bread is attributed in Vienna to three reasons—the oven, the men, and the yeast. Another reason may be added, and that is the dry climate. An ounce of yeast (3 decigrammes) and as much salt is taken for every gallon (1 litre) of milk used for the dough. The yeast is a Viennese specialty, known as the "St. Marxner Presheffe," and its composition is a secret. It keeps two days in summer and a little longer in winter. The ovens are heated by wood fires lit inside them during four hours; the ashes are then raked out and the oven is carefully wiped with wisps of damp straw. On the vapour thus generated, as well as that produced by the baking of the dough, lies the whole art of the browning, and the success of the "semmel."



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Sanitary Institute of Great Britain, Glasgow, 1883. Star Certificate. This Certificate is the Highest Award, and only obtainable by those who already hold the Medal of the Institute.
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International Food Exhibition, London, 1881, Silver Medal. 1882, ditto.

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HAVE HEALTH IN YOUR HOMES!

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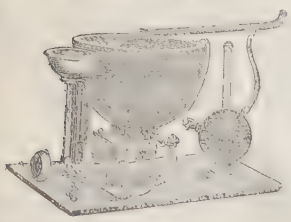

SANITATION.

Visitors to the HEALTH EXHIBITION, who wish for Healthy Homes, free from the many dreadful forms of disease that arise from imperfect drainage and bad-smelling W.C.'s, should see this exhibit, at Stand No. 526, Class 23, where the Apparatus is shown at Work. Price Lists, Testimonials, Opinions of the Press, &c., free on application. One of the most important, cheap, easily applied, and effectual Sanitary Appliances in the Exhibition.

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The first number of Volume VI. commences with No. 140, July 4, 1884.

Among the subjects for this year we may mention that arrangements are made or in progress for a Series of Papers on

"**Flowers,**" by Mr. GRANT ALLEN.
"**Electroplating,**" by Mr. SLINGO.
"**Dreams,**" by Mr. EDWARD CLODD.
"**Microscopic Studies,**" by Mr. H. J. SLACK.
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"**The Almanack, Mapping, the Zodiac, and Constellation Figures,**" by Mr. R. A. PROCTOR.

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By far superior to any of the numerous imitations, are now being Sold at less cost than those of other manufacture.

TESTIMONIAL.

From EDWARD C. ANDERSON, M.D., M.A., Cantab.,
Tom Law, Darlington, November 5th, 1880.

To Messrs. Krohne & Sesemann.

Gentlemen,—I have the greatest pleasure in acceding to your request that I should, from my experience of the Martin's Bandages, testify respecting their excellence.

My knowledge of the quality of Bandages of English make is limited; for, having, about fifteen months back, applied bandages sent to me from this source, and noting the evident irritation and discomfort produced by them—so great, indeed, that each patient soon discontinued their application—I ceased to recommend and use them.

In April of this year, I for the first time used the original Martin's Bandage, and since then I have applied them and none else to the limbs of nearly twenty persons suffering from a variety of complaints, such as ulcers of the leg of old standing, which had resisted all treatment for more than fifteen years; varicosities (the unsound leg of one patient, a man, measured 25 inches round the calf, against 16½ inches, the size of the sound leg; and his condition was such that, before coming under my care, it had been by his former attendant seriously debated whether or not the leg should be amputated to save life. This man goes about wearing a 21-foot Bandage, and the calf of the unsound leg now measures 18 inches); erysipelas, œdema, rachitis, &c.

Suffice it that all, both young and old, have been enabled to wear them with comfort; most of the cases under treatment have been cured, all benefited, and many although well, continue to wear them on account of their safety and the support they give rise to.

I may appear to have said too much in their favour. I can assure you that my feeling is that I have said too little. The great success attending their use evidently arises from the excellent purity, smoothness, impermeability, and non-irritating nature of the Indiarubber of which each Bandage is composed.—I am, &c.

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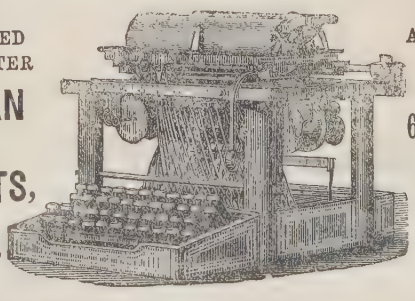

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See "Health," Aug. 22, 1884.—Page 316.

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EDITED BY DR. ANDREW WILSON, F.R.S.E.

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Lie in three words, Health, Peace, and Competence."—*Pope.*

No. 23. FRIDAY, OCTOBER 10, 1884. [*Gratis with* "Health."

THE INTERNATIONAL HEALTH EXHIBITION.

TWENTY-THIRD NOTICE.

GROUP III.—THE DWELLING-HOUSE.

CLASS XXXI. (Baths, Bathing Requisites, Public and Private Wash-houses, Washing Apparatus, Detergents, Appliances for Personal Cleanliness, &c.)—This class, which is a practical exposition of how best to pursue that "cleanliness" which is "next to godliness," opens with a comprehensive exhibit of baths, water-fittings, lavatories, sinks, &c., by Mr. George Jennings, of Palace Wharf, Stangate, Lambeth (927). Of Mr. Jennings's sanitary fittings we have already spoken. These baths and lavatories are admirably fitted, and are of most artistic exteriors. Some very ingenious electric burglar-alarms and electric bells and speaking-tubes are, though they do not properly belong to this class, also shown. The next stand (928) is likewise an extensive one, in which Messrs. J. Tylor & Sons, 2, Newgate-street, E.C., show water-fittings, water-waste preventers, baths, bath-room fittings, &c. Amongst the latter is a taper oval-end bath, in which, by the use of three pipes instead of one, the return of dirty water up the waste is prevented; and a valve outlet bath, which prevents the possibility of anything washing back into it, and is therefore peculiarly suited for hospitals and asylums. The bath-room shown by Messrs. Tylor is a model of excellence in workmanship and of beauty of design. A trough-lavatory range, arranged for barracks, hospitals, and schools, deserves especial notice, in that the waste and overflows immediately disconnect themselves, by discharging into an iron trough, so constructed and fixed that, without removing any parts, the waste and overflows are accessible for cleaning, should stoppage take place. Tylor's patent "waste not," self-closing, non-concussive tap, combines three most important qualifications of a draw-off tap, viz., waste-preventing, self-closing, and non-concussion. Messrs. Shanks & Co., Tubal Foundry, Barrhead, Glasgow (929), have some very tasteful bath-room designs, and some well-made spray and plunge, and spray and sitz baths, with elaborate cabinet-work fittings, besides some good strong baths at a cheaper rate, for houses of a less pretentious class.

Mr. Josiah Webber, Trafalgar Lodge, George-place, Hyde Vale, Greenwich, exhibits (930) a bath which he has invented, which he calls the "Olynthion," and which is designed to give medical baths at the patient's own home, with special facilities for medical observation and control. It consists of a chamber composed of wood, metal, or other suitable material, constructed with double walls to ensure perfect circulation of the heated air. The furnace is so arranged that none of the products of combustion can possibly enter the bath. The flue is first carried round the chamber and then through the furnace before entering the chimney, or passing into the outer air; being thus heated at its outlet it becomes a powerful extractor, and ensures a speedy draught for the fumes. The fresh air is first drawn into a purifying chamber, where it is cleansed of all impurity before passing into the heating-chamber, whence it is projected in continuous waves over the body of the bather, charged with the special chemical the doctor may consider most suitable to the case. After the oxygenated air has done its work, and has become loaded with the exhalations from the skin, it is drawn out of the bath into the chamber between the two walls, and carried to the furnace direct, where it mingles with the fumes of the gas, and is discharged by the same flue. In other baths, where the head is enclosed, the air breathed by the bather is vitiated by the exhalations from the skin before entering the lungs, thus neutralising to a great extent the beneficial action of the bath. In the "Olynthion," not only the skin, but the lungs also are supplied with pure air, and when inhalation is required the ozoniferous atmosphere is brought direct from the purifying chamber. There is a cistern in the canopy for hot and cold water, which may be used either as a shower, an upcast, or a needle douche. There is an apparatus for the application of heat and cold to the spinal centres, and there is a door at the back of the bath whereby the doctor may regulate and control its action. By means of pipes from the hot-air chamber the medicated air is brought to any part of the body requiring local treatment, such as the eye, throat, or ear. By means of a punkah, which can be worked either by the bather himself or by an attendant, a plentiful supply of fresh air is obtainable at will. There is a disinfecting chamber where the clothes of the bather may undergo purification, and be ready for use by the time the bath is over, and he will have the satisfaction of knowing that every trace of contagion must be utterly and completely destroyed. There is another chamber at a lower temperature for the ordinary purposes of airing and warming linen and apparel of all kinds. It will thus be seen that every essential of a complete medical bath is supplied by the "Olynthion," which may also, we are told, be utilised if placed in a bedroom, for warming the room and for airing the bed. By this invention, too, it should be added, the perspiration given off by the patient may be collected for the purpose of medical analysis, instead of being retained, as in ordinary baths.

The sanitary and domestic inventions for the hospital, bath-room, sick-room, bed-room, and nursery exhibited (970) by Messrs. James Allen & Sons, 21 and 23, Marylebone-lane, Oxford-street, are interesting alike to the sanitarian and the medical practitioner. The most useful and striking of their inventions is a portable Turkish bath, which, sold for the small sum of thirty shillings, enables

The Association for the Supply of Pure Vaccine Lymph, formed 1877, 3, Hemmings-row, St. Martin's-lane, London, W.C.; near Charing-cross Telegraph Office, 448, West Strand, W.C. Sole agents for Dr. Warlomont's Calf Vaccine.—[Advt.]

any one to enjoy this most perfect of all baths in his own house. In its application there can be obtained, at the will of the user, baths both of hot air and of vapour, either separately or combined, and a medicated bath of any kind that may be considered necessary. By the simple process of removing the boiler and substituting a vaporiser, supplied at a small extra cost, it will give a mercurial bath. It can be applied to any bed, a wicker frame being placed over the patient, under the outer covering, having at the foot a metal disperser, which prevents the heated air from rendering the position painful or unpleasant by striking directly on the patient's feet, but forces it freely up the sides and over the whole surface of the body. To obtain the required elevation, the box in which the apparatus is kept is used as a stand. It can also be placed under a chair, where, with the three burners lighted with which the apparatus is supplied, and a blanket secured over the whole, in fifteen minutes a bath of hot air or vapour, at a temperature of 140 deg. Fahr., is obtained. By removing the boiler and applying hot air only, in a further space of ten minutes the temperature stands at 170 deg. Fahr. The triple burners have a further advantage, besides complete efficiency in extreme cases, in the fact that the heat can be modified to any requirement to permit the adoption of the bath to the cases of infants as well as adults. Every precaution has been taken to secure perfect safety in its use. To prevent the lamp from being overfilled, a measure is provided which, if used, will only half fill it. Should the lamp by any means be filled, and the spirit percolate out at the burner (sometimes the cause of accidents in other lamps), danger is averted by a channel, which is fitted round each lamp, to be filled with cold water, thereby keeping the spirit in the lamp cool. If the spirit should by chance ooze out, and catch light, the flame cannot spread, by reason of this precautionary measure. It is extremely portable, as with all appliances it may be packed in a box not more than twelve inches square, and may easily be moved from one position to another, its weight being only twelve pounds. Another useful invention shown by Messrs. Allen is a medicated vapour producer for the treatment of bronchitis. It consists of a strongly-made kettle of tin, which can either be placed on the fire or on a stand provided by the inventors, and heated by a spirit-lamp. This latter contrivance enables the vapour to be produced close to the patient when in bed. A cavity is contained in the long nozzle, by which means the vapour can be medicated. A portable hot-air and vapour bath and cooker combined may be also highly recommended to tourists and others as one of the most compact and useful travelling companions yet introduced. An invalid's, nursery, and hip-bath combined is made basin-shape to give plenty of space each side for use of the sponge, and, like the hip-bath, it is supplied with a back. It is mounted on a stand, with legs to screw out for travelling, and thus takes up no more room than an ordinary hip-bath.

Of ordinary baths and their accessories there is a great collection in this class. Mr. Samuel Owen, 57, Fann-street, Aldersgate-street (932), shows his patent "comfortable" bath, which, with its seat, is cast in one piece of metal. Lavatories, and twin screw bath fittings, and some very admirable, cheap, and clean baths are shown (934) by Messrs. B. Perkins & Son, Bermondsey-street, E.C. They are open baths made of steel, tinned and enamelled inside, so preventing the rapid chilling of the water, and are much more durable than cast iron. Messrs. Clements, Jeakes, & Co., 51, Great Russell-street (936), send an assortment of their pure metal water-fittings, enamelled cast-iron and porcelain baths, and needle and Turkish baths. Mr. John Smeaton, Imperial-buildings, Ludgate-circus (938), and the West Central Sanitary Engineering Company, Drury-court, Strand (939), are also exhibitors. Messrs Ewart & Son, 346, Euston-road, show (937) a new water-heater, called the "Califont," the parts of which are movable and fit loosely, so that the whole apparatus can with the greatest ease be taken to pieces for examination, cleaning, or renewal, without reference to the makers. The burner swings entirely out for lighting, so that there is no risk of explosion from confined gas. No solder is used in the manufacture, the joints being seamed or riveted, so that there is nothing to melt, even though the gas should be turned on before the water flows, or be left burning after the water is cut off. The "Califont" can be made of any required capacity, but is kept in stock in one size only, but in two qualities. The best will warm thirty gallons of water to 100 degrees Fahrenheit (enough for a warm bath) in ten minutes. The boiler is made of copper throughout, with brass burner, fitted with Bray's brass jets. The "Califont" can be fitted with a self-making gas apparatus, for use where the gas-pipes are not laid on, at a small extra charge. The firm also show their "General Gordon" gas-bath, the sides made of tinned and japanned sheet-iron, and the bottom wholly of copper, and fitted with a movable towel-warmer and powerful atmospheric burner.

There are several exhibitors of soaps, blues, and other toilet and washing requisites. Messrs. A. & F. Pears, 38, Great Russell-street, have a stand (969) which, it is almost needless to say, carries the palm, in this class, for attractiveness and artistic arrangement. Everybody knows the excellent qualities of Pears's soap now-a-days, so that it is useless to waste words in describing them. Mr. E. Rimmel, of 96, Strand (931), has a selection of sanitary perfumery; and Messrs. John Gosnell & Co., 93, Upper Thames-street (946), show several sanitary toilet preparations and toilet-brushes for the teeth and skin. Mr. David Salmond, Valley-road, Bradford, Yorkshire (965), is the maker of a soap composed of olive-oil and pure potash, which is peculiarly adapted for laundry use, and which will, doubtless, become increasingly popular, inasmuch as it leaves no burning effects on the clothes. Mr. Salmond's other specialties are Best Olive-oil Hard or Marseilles; Best White Curd, Oxy-kali Curd, Gallipoli Oil Soft, Olive Oil Soft, and Refined, Cotton Oil Soft Soap. The first of these is a capital article for bleachers, dyers, silk and wool washers, and others. The material is in large demand at all the principal places where these processes are carried out, and the distinct preference thus set upon it by those most competent to judge is an admirable criticism on its real value. Woollen and yarn bleachers of most important standing in the country agree that the Oxy-kali Curd is the most reliable soap in the market. Not only is it a thorough bleacher, but it imparts a softness to the material, making the whole process beautifully effective. The Gallipoli is a special preparation for sheep and wool washing, and from its highly-nutritious merits is fast becoming the monopoliser of the colonial markets, at which an immense trade is done in soap for sheep-washing. Mr. J. Sowerbutts, Woking (966), exhibits "Sapoline" soap, which seems to possess an excellent record so far as its detergent qualities are concerned. Messrs. John Knight & Co., Silvertown Soapworks, Victoria Docks, E.C., exhibit (942) their various soaps for household and laundry purposes. Their pale primrose for the head, body, and limbs is particularly recommended for its purity and efficacy in cases of "bad heads" in children. Messrs. Paton & Charles, Tunnel Soap Works, Wapping (945), have arranged their case in a very attractive fashion. Prominent among these samples is the "Hygienic Soap" brought out some time

ago by this firm, and now becoming very popular. Dr. Hassall has given a report on this soap, which, we may state, is altogether favourable to the "Hygienic Soap," and does adequate justice to its good qualities. The other varieties of soap exhibited by Messrs. Paton & Charles include cold-water, mottled, double primrose, honey, red tar, and elder-flower. Their case is rendered additionally attractive by a striking and well-executed bust of the Prince of Wales in white soap on a fluted column of red mottled soap. Amongst the laundry blues thrown in this class is the Sanitas disinfectant blue, made by Messrs. Hargreaves Bros. & Co., Hull (953); and liquid blue, manufactured by Messrs. Thompson & Son, 22, Worship-street (960). The Cheeseborough Manufacturing Company, 41, Holborn Viaduct, have a case (952) fitted with their well-known Vaseline preparations. A case containing a bath made of salt extracted from the waters of the Droitwich Brine Baths is exhibited (943) by Messrs. Rogers, Brock, & Co., 56, Friday-street, E.C.

Class XXXII. (Publications and Literature, Models, Pictures, and Diagrams relating to Group III.).—This class, so far as the diagrams, &c., are concerned, is located in the main entrance, and suffers somewhat from the fact that many of the exhibits are "skyed" out of the way of careful examination. Nevertheless, the class is an important one, as showing the interest that is being taken throughout the country in the housing of the poor question, and in the no less important subject of the sanitary construction of dwellings of all classes. The Corporations of Liverpool and Bolton, and nearly all the metropolitan societies interested in this question, are exhibitors. Mr. Edward Clarke, 6, Adam-street, Adelphi (983), sends drawings of industrial dwellings erected under his supervision in various parts of London, many of the sites being of a very awkward nature. The rooms are well lighted, but, if anything, too large—at least, too large from the speculative builder's view, where, with land at so much per foot, they can hardly afford to throw in a few extra feet. There is very little waste in passages or angles, a fault very noticeable in the earlier attempts of the pioneers of this movement. The illustrations show variously three, four, five, and six stories above the ground-floor, and in some cases the ridge is finished with an iron cresting. There is one peculiarity in the plan which, perhaps, in practical working would not be any disadvantage; that is, the separation of the living-rooms from the bed-rooms by a corridor upon which they all open. Thus we have four living-rooms side by side, with the bed-rooms opposite. The Improved Industrial Dwellings Company, 34, Finsbury-circus (997), send some drawings of the buildings on their Edgware-road estate—the usual rectangular plan in parallel blocks. An interesting map is also shown, with red discs placed so as to show the vast operations of this great company. No site seems too large for them, and none too small, for we find at Mile End they cover nine acres of land and house 1,045 families, and at Pentonville a small block shelters only twenty families. These drawings submitted form a useful study, as there is considerable variety in the design, although it is not of a high class; and those who are interested in the question may see the various points contrasted in a way that offers useful suggestions. This company claims to have housed 25,000 people in 16,766 rooms, at a cost of £950,000, making an average of £38 for each person and a cost of about £50 per room. This, we suppose, is exclusive of cost of site, and their experience must have led them in more economical ways of late, as these figures compare very favourably with the earlier results. Some interesting photographs show the rookeries which have been demolished to make way for the various new buildings, and, to judge from the squalid surroundings and miserable tenements, these sites should have been acquired at very reasonable figures. An interesting illustration of what may be done by co-operation as practised in the large centres of industry in the North is given (1,006) by some plans and photographs of houses built and occupied by purchasers from the Odd Fellows Co-operative Building and Investment Company, Manchester. The houses are excellently built and admirably adapted for the class which it is intended should occupy them. The question of agricultural labourers' dwellings is treated (1,014) by Mr. Wm. Theobald, 48, Watling-street, who sends perspective plans of cottages designed with a view of showing how the agricultural labourer and artisan can be comfortably and conveniently housed at a small outlay. They consist of living-room, kitchen, wash-house, and other necessary offices, and have this noticeable feature, that they contain three bedrooms, viz., parents', boys', and girls', all of which are ample in size, well lighted, and all are separate. The cost to build would be limited according to local circumstances. The only other exhibit we need mention is that of Mr. Joseph Wall, 13, Walbrook, E.C. (1,019), who shows a simple rectangular plan apparently free from difficulties as to light and surrounding owners. He is the only exhibitor who gives a detailed cost of the transaction from first to last, giving the price of the land at £7,000 per acre, and the average rent of each room at two shillings per week. He shows a return of 5½ per cent. on the outlay. Although the aggregate cost of the block is given, the price per room or the price per cubic foot is not stated. There is a note on the drawing to the effect that buildings of three or four stories can be built more cheaply than those of a loftier structure; but this depends entirely upon the price of the ground or the amount at which the ground-rent is fixed; for if, as is usually the case, the buildings are erected on valuable ground, it is the upper floors that show the profit, and help to redeem the cost of the lower ones.

Group 111a.—Ambulance.

Class XXXI. *a* and *b* (Aids to Sick and Wounded in War and Peace).—Many of the exhibits in this class will call for little notice at our hands. The interesting collection of the Army Medical Department (1,045), for instance, possesses only an indirect interest, but several of the stands call for careful inspection. Accident ambulances are represented by the manufacture of several carriage works, and especially by the excellent St. John Ambulance Association, St. John's Gate, Clerkenwell (1,064), who show folding stretchers, hand and other litters, and (through the Tibshelf Colliery Centre of the Association) a complete collection of the special apparatus used in cases of mine accidents. It is gratifying to note that the number of centres and branches of the Association now established at home and abroad amounts to 190, while, in addition, many hundreds of "detached classes" for both sexes have been held in the United Kingdom, the Continent, and the Colonies, among the more recent foreign centres being Gibraltar, Bombay, and the "Victoria Centre," Australia. During the past year 9,069 certificates have been awarded, 1,139 of which were to women for the Nursing Course, 3,322 to women for the "First Aid" Course, and 4,608 to men, making a grand total of at least 70,000 certificates issued since the institution of the Association in 1877. At one centre alone (Middlesbrough-on-Tees), eighteen classes, numbering 600 pupils, were examined in one week.

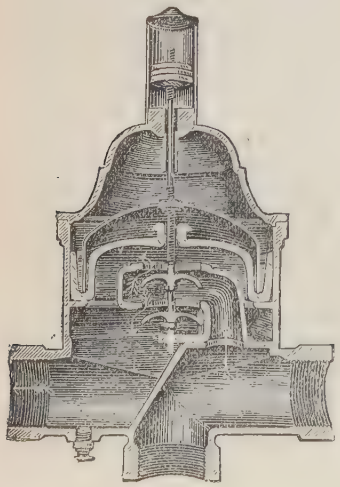
A most interesting stand is that of the Metropolitan

Asylums Board (1,047), where are exhibited the appliances provided by the Board for the removal of infectious cases arising in the metropolis, and a carefully-executed model of the pier at Long Reach, showing the method adopted for the conveyance of patients from the shore to the hospital steamer. This stand shows what a large amount of good work is being done, in the treatment of infectious disease, by a public authority which works under peculiar difficulties, and is even yet regarded with something very like aversion by the classes it is mainly established to benefit. Apropos of ambulances, we ought to mention an omnibus shown by Mr. John Furley, of Ashford, Kent (1,063), which is adapted for the ordinary use of a private establishment, but which, by means of a patent suspension apparatus, can be immediately converted into an invalid carriage.

Among what may be called the more general exhibits is that of Mr. J. D. Kennard, 19, Grand Parade, St. Leonards-on-Sea (1,026), the maker of a convertible gynæcological chair for the consulting-room, which, while forming a comfortable easy chair, makes a convenient table for gynæcological examinations and ophthalmic and minor operations. Its simplicity, lightness, and extreme adaptability for the purpose for which it is intended should recommend this chair to the profession. A conveniently-made couch for similar use is also shown and exhibited (1,051) by Mr. A. Carter, 47, Holborn-viaduct. A collection of invalids' chairs, carriages, and couches is shown by the makers, Messrs. Leveson & Sons, 90—92, Oxford-street (1,027). Their "Ilkley" couches, which can be adjusted to any position in an instant, and can be entirely folded up for travelling, may be especially recommended.

Mr. John Carter, 6A, New Cavendish-street, the well-known maker of invalid furniture, shows (1,029) his "literary machine" for enabling persons to read or write whilst in a recumbent position, tables for the sick bed, and invalids' appliances of all descriptions. A sanitary wire mattress, made by Mr. Carter, is also worthy of notice. It can be made hard or soft at pleasure, and as it can be fixed on either iron or wooden bedsteads at a very low cost, it should altogether supersede the old straw palliasses. A folding camp or occasional couch fitted on this mattress, as shown here, would be a sensible addition to officers' equipments. The "Triumph" folding-chair, shown by Messrs. Sahl & Co., 36, Basinghall-street, E.C. (1,032), seems to combine the maximum of comfort and usefulness with the minimum of constructional framework. It can be carried or put away like a light screen. It can be used as an invalid or reclining chair, or bed, or hammock, and its construction is such that it can take four or five different degrees of inclination to suit the comfort of the occupant. To it can be attached a reading-desk, a foot-rest, and a canopy, and it can be had with or without arms. It is made in beech-wood, either in its natural state, or varnished, or polished, or of stained walnut, mahogany, or ebony, and the seat and back, which are formed from one piece of material, can be had either in canvas, tapestry, net-work, or other suitable textile fabric. The canopy is adjustable, and, like the foot-rest and reading-desk, can be detached in a few seconds. Mr. John Ward, 246, Tottenham Court-road, and maker of invalid furniture, sends (1,034) a large assortment of his manufactures, including a large variety of self-propelling "Merlin" and "Northumberland" chairs, and several handsome-looking, smooth-running, "Victoria" chairs. An excellent invalid bedstead couch and litter is shown (1,035) by the Patented Improvements Company, 307, Broad-street, Birmingham. It consists of a movable frame, which is raised or lowered to any height required by means of a screw and winch. It is covered with strong canvas, either in one piece or in three pieces, attached to rods or hooks and rings in the side poles, which are made to expand by means of screws at each corner for keeping the canvas rigid. The canvas is easily taken off when a clean set is necessary. Over the canvas is placed the blanket and sheet, or air-bed, on which the patient lies; these being in two halves, are easily removable at any time. In its normal state, the frame rests upon the mattress or bed. It is only when the patient requires to be raised for medical examination, or for the purpose of affording relief by the bed-pan, or for re-arranging the bedding, that the Frame is required to be lifted. The frame, we should add, is removable from the screws, and can be used as a litter to carry the invalid from one room to another.

Messrs. Pocock Brothers, 235, Southwark-bridge-road, the makers of the Universal Tubular Water and Air Bed, which has already gained several prize medals, is exhibited in this class (1,044). We had occasion to speak favourably of it when noticing the National Health Society's Exhibition at Knightsbridge last year. We have, therefore, only now to remind our readers that it consists of a series of separate cylinders, capable of being arranged in any position to meet every requirement, and of being inflated either with air or water. It forms an air bed or a water bed, or, by altering the cylinders, a combination of both. The space between the tubes gives ventilation and additional ease, while the tubes themselves can be inclined to any angle to suit the condition of the patient, a result which cannot be obtained with the ordinary water bed.



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Sanitary Institute of Great Britain, Newcastle, 1882. The Only Medal.
Sanitary Institute of Great Britain, Glasgow, 1883. Star Certificate. This Certificate is the Highest Award, and only obtainable by those who already hold the Medal of the Institute.
National Health Society's Exhibition, London, 1883. Silver Medal.
International Food Exhibition, London, 1881, Silver Medal. 1882, ditto.

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From Mrs. Kelly, Prince of Wales-terrace, Kensington.—"Mrs. Kelly begs to inform Mr. John Branch that she is very satisfied with the 'Reversible' boots supplied to her, and would be glad to have the name of the West-End agency, as she wishes to get similar boots for her daughters."

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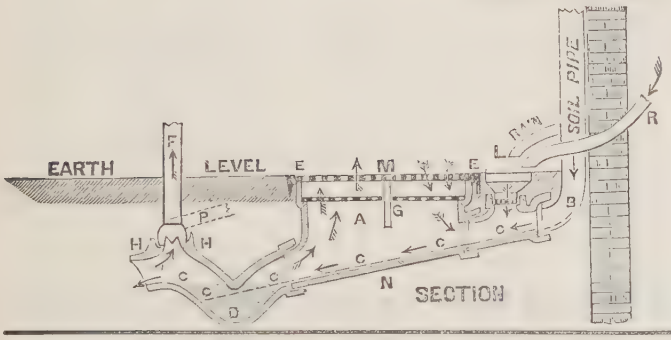

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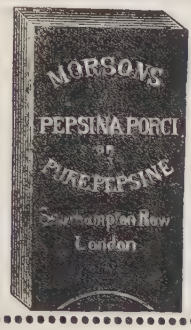

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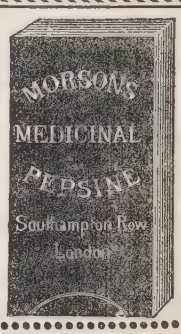

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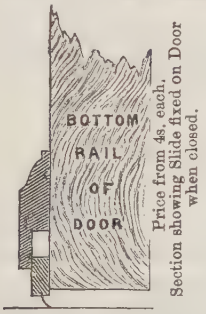

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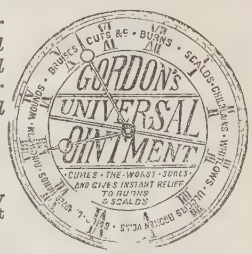

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Lie in three words, Health, Peace, and Competence."—*Pope.*

No. 24. FRIDAY, OCTOBER 17, 1884. [*Gratis with* "Health."

THE INTERNATIONAL HEALTH EXHIBITION.

TWENTY-FOURTH NOTICE.

Group IV.—The School.

This group is nominally divided into seven classes—XXXIV. to XL. inclusive—which, however, it will be more convenient to discuss as a whole. The first class consists of a series of drawings and plans of well-known school buildings, and, contrary to the statements of the catalogue, are grouped in the main entrance-hall. There are, however, in the class (35) of apparatus and fitting for warming, ventilating, and lighting schools one or two exhibits which call for notice. First is the stand (1,279) of Mr. A. B. Reck, of Copenhagen (the agents for whom are Messrs. Puggard & Galschrott, 34, Eastcheap), the patentee of a system for heating and ventilating private buildings by hot-air furnaces and open fire-places. By this system a furnace, surrounded by brickwork or iron plates, is erected in the cellar communicating with the open air through a sufficiently large duct. The air is heated by the furnace and led into the rooms through channels which may either be constructed in the walls when the houses are built, or made of thin iron plates, if being fitted into old houses. As the air will not require to be heated more than a few degrees above the temperature of the rooms, no danger of fire can ever arise, neither can the air be scorched by this mild heating, and the fresh air, besides being heated, may also be supplied with a suitable amount of moisture from water-basins placed above the furnace. It is claimed that by this method all air escaping from the room by the flues of the open fire-places will be replaced by comfortably warm air, which will rise from the openings of the channels in the rooms to the ceiling. This air, which is gradually replaced by the fresh atmosphere entering the room, will in time sink down towards the floor and finally escape by the chimney. This system has been devised for schools, hospitals, and for large public buildings, for which it seems more particularly suited. Mr. Reck also shows some cylindrical heating and ventilating stoves, which consume any sort of fuel, which require no brickwork setting, and the heat of which can be easily regulated to any required degree. They possess one great advantage in that they cannot get red-hot, and so overheat the air. The "Gurney" stove is shown (1,280) by the London Warming and Ventilating Company, 32, Henrietta-street, Covent Garden. It has successfully met the difficulty of warming St. Paul's Cathedral, and may, therefore, be deemed highly efficient in its operation. The stove presents externally a series of perpendicular radiating wings, which spring from a plain interior cylinder. It is placed in a pan of water regulated to produce the required amount of evaporation, and the vapour passes, in conjunction with an ascending column of air, over the external surface of the stove, and rapidly intermixes with the surrounding atmosphere. The stove can be made to introduce any amount of fresh air, so maintaining in itself perfect ventilation. Messrs. Herring & Son, of Chertsey (1,282), send a model on half-inch scale of the City of London New Schools on the Thames Embankment, in order to illustrate the downward-flow warming and ventilating apparatus which they have fitted there, and which has, so far, worked most satisfactorily. There are several exhibitors of appliances for gymnastic and other exercises, such as rowing, football, lawn-tennis, &c., prominent among them being those of Adolph A. Stempel, 75, Albany-street, Regent's Park (1,504), and Oscar Knofe, 16, Finsbury-park-villas, Green Lanes (1,307). The latter has a very large space at his disposal—nearly half the gallery, in fact—but to most of the visitors the makers of appliances for well-known English athletic sports have a far more attractive show. Dr. Roth, 48, Wimpole-street, Cavendish-square (1,296), has an instructive collection of diagrams illustrative of bad positions during the time of school-work, and models of hygienic school benches and chairs, and distributes a very useful leaflet, entitled "Hints for the Prevention of the most common Accidents causing Blindness, and Instructions how to act till Medical Aid can be obtained." These are about all the exhibits that need be noticed in what is, all things considered, an unsatisfactory and disappointing section.

Group V.—The Workshop.

This group consists nominally of six classes, but several of the names in the catalogue are really exhibitors in other sections. The group is not so complete as might be desired, although some of the exhibits are of a very interesting character. For instance, Mr. Wm. Clark, 19, Lee-street, Plumstead, an engineer in the Royal Arsenal, treats (1,324) of the important question of drawing dust and foul air from grinding-machines. The apparatus consists of a series of suction-tubes fitted to the grinding-machines. These are again connected to a large pipe or box with sliding-doors, which again is connected with an exhaust fan. The action of this fan causes a very powerful down-draught, which draws off all the lighter particles of the metal being ground, the heavier portions sinking to the lower side of the suction tubes, whence they may be swept out. The lighter parts are forced into a receiver, into which a fine spray of water is falling, and the particles are thus made to fall to the ground. Whether the principle works well in practical application, we are unable to say, but it is, at least, a laudable attempt to remedy a fruitful source of disease amongst workers in metal-grinding factories. Another dangerous trade is treated (1,321) by Mr. E. V. Gardner, 3, Pall-mall East, the inventor of an electric process of making white-lead, in which he claims that female

The Association for the Supply of Pure Vaccine Lymph, formed 1877, 3, Hemmings-row, St. Martin's-lane, London, W.C.; near Charing-cross Telegraph Office, 448, West Strand, W.C. Sole agents for Dr. Warlomont's Calf Vaccine.—[Advt.]

labour is quite unnecessary, and manual labour to a great extent replaced by machinery which produces a true amorphous white-lead in two weeks. The prevalence of accidents in saw-mills would be entirely prevented by an ingenious apparatus exhibited (1,316) by Mr. James B. Lakeman, H.M. Inspector of Factories, or by an equally ingenious invention shown (1,325) by Mr. R. W. Taylor, of Bury St. Edmunds. Another very useful series of exhibits is that in small Class XXIII. (Objects for Personal Use, Mouthpieces, Spectacles, Dresses, Hoods for Use in Unhealthy and Poisonous Trades). Messrs. Squire & Son, 413, Oxford-street (329) are the makers of the excellent respirator which gained the National Health Society's medal last year. It is light, durable, and costs only a shilling, while it affords a perfect protection to persons engaged in workshops where there are floating dust particles of an injurious character. It fits over the mouth and nose, and is kept in place by an elastic string placed behind the ears. The interior is of a finely-made perforated metallic substance, the air being filtered by layers of cotton wool which have previously been heated for several hours to 300° Fahr., or more for safety. If considered necessary, a small piece of sponge, to hold a disinfectant, can be attached for the use of workmen employed in repairing drains or emptying cesspools. It can also be made available for sanitary purposes in various ways, and by merely shaping with the fingers can be adjusted to fit any face exactly. A number of excellent eye-guards are shown (1,327) by Mr. Thos. H. Harrison, Fitzroy Works, Kennington-park-road, and Mr. Thos. H. Harrison, 40, Hatton-garden (1,327), presents a selection of improved eye-protectors, reading-shades, and some kindred objects. The reading and sun-shades are somewhat novel in form, but are well made and finished. The material is a vulcanite, and the shades are of various colours. The finish of a number of these eye-protectors, in appearance at least, is superior to similar objects previously made from more costly materials.

In Class XLV. the important question of seats for shop-girls, &c., is treated in two exhibits, one by the Reltie Patent Seat Company, of Cannon-street (1,334), and the other by Mr. Edward B. Fitton, H.M. Inspector of Factories, Malvern (1,343). The former show seats which have the great advantages of compactness and economy of space. The seats are so constructed that they pivot back into an upright position out of the way when not required, thus in no instance causing an obstruction or blocking of the passages should they be affixed near one. The second exhibitor displays some plainly-made, but withal serviceable, movable seats for shops and work-rooms. They are somewhat small in size and oval in shape. They can be adjusted in any position, to corner space, angle, or leg of bench. They form, in fact, a revolving bracket with pivot working in screwed-on socket when adjusted. Two other exhibits are designed to prevent the bent, cramped, and injurious position which shoemakers assume when at work. That (1,336) of Mr. Chas. Hare, Calvert-street, Norwich, consists of a last on a stand, which will allow the boot or the shoe to be held in any desired position. That (1,337) of Messrs. J. Sparkes Hall & Son, 308, Regent-street, is an upright shoemaker's bench. A leather-covered pad, somewhat in form like a life-belt, with a central opening, is affixed on the top of a pedestal or hollow stand in front of the shoemaker's bench. A leather strap passes over the last or shoe (as the case may be) lying across the pad, and this strap passes down the central opening, and is tightened by the foot of the workman pressing a treadle in connection with the hollow pedestal. The method is very simple and effective, and the workman at his pleasure can tighten or relax the grip of the strap on the last or boot, and turn the latter round in an instant to suit the progress of his operation.

Group V.—Meteorology in its Relation to the Study of Public Health.

This, too, is a small section containing only some fourteen exhibits, mostly by makers of thermometers and other instruments used in meteorological and climatological investigations. In addition, the Meteorological Council, Victoria-street, S.W., and the Royal Meteorological Society, Great George-street, send diagrams illustrative of the climatical conditions in various parts of the world, and the relation of those conditions to health and disease.

DIVISION II.—EDUCATION.

Group VI.—Educational Works and Appliances.

This division, the main body of the exhibits in which is located in the Albert Hall, proposes, not so much to illustrate the whole of the vast subject of education, as to display such objects and educational appliances as have a special relation to healthful school life. This limited field is, however, well represented, the classes are arranged with care, and the whole forms an instructive collection of one branch of an almost exhaustless subject. Commencing, in the order of the catalogue, with Class XLVII., we find a series of stands dealing with the fittings and conduct of crèches and infant schools, and exhibits of games, toys, and Kindergarten amusements. Messrs. O. Newman & Co., 7, Trafalgar-buildings, Charing-cross (1,370), and Mr. Morris Drukker, 61, Stamford-road, Kingsland, send a number of Kindergarten materials and appliances for primary instruction, the former following strictly Frochel's well-known system. Mr. S. A. Miller, Grange House, College-park, Lewisham (1,373) exhibits a system for the primary education of children by means of cards, his aim being to utilise in the acquirement of knowledge that restlessness which has hitherto been regarded as the main hindrance in the education of children. "Unless properly trained," says our exhibitor, "to such work as we give them, our children become careless as to its quality, and, in the same proportion, indifferent to their task—not found interesting. They have to be reminded that "strictness is the condition of rejoicing," and to be helped to realise the fact. And how? Outward checks are, of course, needful, but the higher and truer work is to evoke the critical faculty latent in each child, and set it to work upon himself. Children's knowledge is always in advance of their practice. Eye and ear can criticise defects of hand and voice, and should be set to do such work as they could, instead of leaving it to a teacher. A habit of self-criticism once induced, we should clearly be far on the way to real moral culture, now theorised about, rather than practically secured. A further step would be gained in the recognition of children's social proclivities by setting them both to help and criticise each other. Training would be needed here also, and specially; but returns would so certainly prove fruitful in good, that all time and effort devoted to the object would be found wisely expended." The exhibit of Mr. J. Ramsey Cooper, 17, High-street, Canterbury (1,376), is thus described:—"Boards with revolving or sliding arrangements and reading sheets, for teaching children the English language by a graded method of phonic word-building with the ordinary orthography. 1st step.—The vowels used in their primary powers. 2nd step.—The vowels used in their primary powers, preceded by a consonant. 3rd step.—The vowels in their primary powers preceded and followed by single consonants, with

silent final 'e,' as in 'lake,' 'ride,' 'home,' &c. 4th step.—Vowel-digraphs in which the first vowel is vocal and the second silent, as in 'pain,' 'boat,' 'seat.' 5th step.—Vowels and vowel-digraphs as above, with double consonants. 6th step.—Vowels used in their secondary (or short) powers, as in 'man,' 'ten,' 'pin,' 'log,' 'run.' 7th step.—Vowels and diphthongs represented by irregular orthography. 8th step.—Consonant variations. 9th step.—Special exceptions."

The next class (XLVII.) is devoted to fittings for school-rooms, and shows that if in any of our schools the old injurious, unnatural forms of seats and desks are still adhered to it is owing to the ignorance of the managers, and not because appliances of a hygienic and natural order are not to be obtained. Hollowed seats, backs which give proper rest to the little scholar, reversible desks for use in schools and chapels, are here in great variety; many of them being so constructed as to adapt themselves to children of varying height and ages. Nothing, indeed, can be more absurd, and at the same time more injurious to the children themselves, than to provide one rigid uncomfortable seat to be used by pupils of any age between six and sixteen.

Novelties in maps are shown (1,384) by the North of England School Furnishing Co., Darlington. One is fitted in a trough, which will hold water, and is designed to give the scholar a correct notion of the physical features of the country. The other is a photograph map, showing the hills, valleys, and rivers in relief. Some excellent alto-relief maps are likewise shown (1,430) by Messrs. W. Martin & Co., Nile-street, Glasgow. The important subject of storing and drying the clothing of the pupils whilst they are engaged in schools is treated in a model (exhibited, however, for some unknown reason in the body of the Exhibition building) of a school cloak-room (adapted, with improvements, from the best examples to be found in American Public and Normal Schools), showing drying apparatus, drainage for umbrellas, &c., now in use in King Edward's Grammar School, Five Ways, Birmingham. The object of this exhibit is to show what can be done at a moderate cost, to promote health, inculcate habits of tidiness, and teach respect for property, in connection with school cloak-rooms. The fittings of the cloak-room have been designed in order (1) to isolate each scholar's outdoor clothing, so that the risks of the spread of infection may be largely diminished, and that the wet coat of one boy may not saturate the dry coat, or stain the light coat, of his neighbour; (2) to provide a system of umbrella-drainage, by which the fetid and discoloured drippings of many (cheap) umbrellas may be at once carried outside the building; (3) to subject each separate coat and umbrella to a current of hot air, and, at the same time, to obtain such a length of hot-water pipes as will raise the temperature of the room sufficiently to dry wet clothes in the interval between assembly and dismissal; (4) to reduce to a minimum the temptation to pilfer; (5) by giving each boy's umbrella a place for deposit in his own compartment, to prevent delays and confusion at dismissal, and check changes of ownership, accidental or otherwise; and (6) to introduce the scholars to perfect order and system at the very threshold of each day's school-work, and by this and other arrangements, conceived in a like spirit throughout, to develop naturally, an abiding sense of the first principles of self-discipline and morality.

Class XLIX. treats of the education of girls in domestic economy, cookery, housework, washing and ironing, needle-work and embroidery, dressmaking, artificial flower making, and painting on silk, pottery, &c., and has only two or three unimportant exhibits.

Class L., embracing the subject of handicraft teaching for boys, has only a nominal existence here, the whole matter being dealt with in the exhibition of the Central Institution of the City and Guilds of London.

Class LI. is exclusively devoted to science teaching—a subject which, although of great importance in itself, scarcely comes within the province of these notices. The same may be said of the classes dealing with art teaching, technical and apprenticeship schools, and the education of the blind, deaf, and dumb. The Christian Brothers—a society of devoted Catholic teachers, who in France, Belgium, the United States, and in our own country, have organised and conducted many schools for the poor—also send a very interesting collective display, showing the methods and results of their work.

Under the auspices of the Central Institution of the City and Guilds of London—a combined movement for the promotion of technical and higher education which we owe to the public spirit of the Livery Companies of the Metropolis—there has been gathered together, in eight classes, a complete and instructive collection of educational works and appliances, to which all the educational agencies at work in the kingdom have contributed. Here the visitor may learn the full extent and nature of the operations of the British and Foreign School Society, the National Society, the Church of England Sunday School Union, the Committee of the Manchester Art Museum, the Sunday School Union, and the various Ragged School Societies. The Coachmakers' Company illustrate in the completest manner the progress of technical education in the carriage trade, and the Central Institution sends examples of all the studies pursued at its technical schools. The School Boards of London, Birmingham, Sheffield, Edinburgh, Glasgow, and other towns illustrate the whole course of instruction in their schools, and the London University College proves to all the world the great place which applied science fills in its curriculum. Nine schools for the deaf and dumb, and as many institutions for the training of the blind, show the rapid strides that have been made of late years in these two interesting and, until lately, much neglected spheres of educational work.

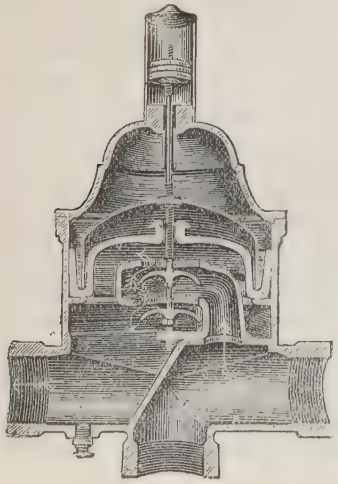
In connection with this group two foreign Governments—those of France and Belgium—have organised elaborate collective exhibitions, showing the methods and results both of primary and secondary instruction in those countries, and many objects are also exhibited illustrating the newest appliances for instruction in use in Germany, in the United States of America, in Sweden, and in Switzerland. That there is no display on the part of the English Government may be readily accounted for by the fact that the Education Department in this country occupies a position wholly unique, and differing substantially from that filled by the Bureau of Public Instruction in almost every Continental country. Amongst the French group of exhibits, one by M. Chaix, printer and publisher, 20, Rue Bergère, Paris, deserves a word of mention if only as an example which might be followed. It consists of the plans of a professional school annexed to M. Chaix's printing establishment. The hygienic arrangements for the protection of the health of the scholars and apprentices are most elaborately and carefully planned. The school comprises three distinct groups: 1. The apprentice compositors; 2. The apprentice engravers and lithographers; 3. The boys and youths occupied at the machines; Every apprentice receives per day a gratuity varying from 50 centimes to 3 f. 50 c., according to age. The direction of work is entrusted to three chief foremen, the school-teaching is given by thirteen of the principal people connected with the firm. Apprentices have the free use of an extensive library. Means of encouragement and emulation: 1. Counters (*jetons de*

présence) of the value of 10 centimes (one penny) are given every day to the pupils whose behaviour and work during the lesson have been satisfactory. The sum represented by the counters which have been given out since the origin of the courses amounts to 9,900 f.; 2. List of honour; 3. Annual distribution of prizes; 4. Frequent gifts of instructive and moral books. Among the measures taken for the health of the boys, there is one which we would specially call attention to: it is the monthly hygienic inspection. On the first Monday of the month the apprentices meet to be examined by the doctor of the firm, who examines their general state of health, and orders, for those that need them, tonic and strengthening medicines. More than one hundred flasks of cod-liver oil, syrup of gentian, antiscorbutic syrup, and quinine wine are every year supplied to the boys. Bath-tickets are also delivered to those that ask for them; the distribution amounts, on the average, to twenty tickets per month in winter, and to thirty-five in summer. The monthly hygienic inspection which gives an opportunity to the doctor for renewing his useful connsels about hygiene and cleanliness, was instituted in 1873; it has produced excellent results, and a sensible improvement is reported in the health of the boys.

[In our last supplement special notice should have been taken of the preparations of Messrs. F. Calvert & Co., of Manchester, whose carbolic manufactures have frequently and favourably been referred to in Health, and whose articles bear the high impress of skill in preparation, combined with excellence and purity. In Class XXIII., No. 552, Calvert's soaps specially claim the attention of the visitor to the Exhibition. These include carbolic acid soaps, prepared as follows:—Toilet soaps, with ten per cent. of the pure acid; household, toilet, or prickly heat soap, ten per cent.; shaving and tooth soaps; carbolic glycerine soap; nursery soap, five per cent. acid; medical soaps, twenty per cent.; domestic soap, eight per cent.; soft soap, ten per cent.; dog soap, eight per cent.; and laundry soap, four per cent. In the treatment of infectious diseases, and in bathing fever patients, these soaps have long had a reputation of the highest value. There is not a phase of domestic life or usage for which the admirable disinfecting properties of carbolic acid can not be used, and which is not represented in Messrs. Calvert's list of soap preparations. The twenty-one medals, diplomas, &c., received by Messrs. Calvert & Co., speak fully for the success which has attended their manufacture of these preparations.]

A disgraceful case of overcrowding was lately brought before the borough magistrates of Folkestone, on an application by the Town Council for an order to compel the occupiers of the house to abate the nuisance. It appeared from the evidence of Dr. Bateman, the medical officer of health, and the inspector of nuisances, that a small four-roomed cottage, with scullery and box-room, had been tenanted by no less than four families, comprising nineteen persons, the ages varying from old age to infancy. In addition to this there was no water supply to the house. The defendants complained of the want of cheaper and better occupations for the poorer classes. The magistrates made the necessary order, remarking that, according to the cubic capacity, not more than six persons should occupy the house.

Historic Droughts.—An Italian *savant* passes in review the hot years of history, beginning with 627 A.D., in which the water-supply of France, Germany, and Italy was completely dried up. In the year 897 the heat was so great on the Continent that vast numbers of peasants were struck down with *coup de soleil* in the fields; in the year 993 vegetation was burnt up by the sun as if by fire; in A.D. 1000 the wells and watercourses were all dried up, and the masses of fish heaped up on the banks of rivers and lakes produced a pestilence by their putrefaction. In 1132 the earth was so scorched with the intense solar heat that great fissures were made in it for miles, and seven years afterwards the same phenomenon was witnessed, especially in Italy. The years 1260, 1277, 1303, and 1304 were all signalised by protracted drought, insomuch that the largest rivers in Europe, the Rhine, the Seine, the Po, the Tiber shrunk to the tiniest streamlets. In 1615 and 1625 a similarly excessive heat prevailed all over Europe, and in 1705 the temperature rose so high as sometimes to resemble that of a glass manufactory. Butchers' meat was cooked by the sun, and from mid-day till 4 p.m. no one ventured out of doors. For six months in 1718 not a drop of rain water fell, and in 1753 the thermometer averaged between 38° and 40° C. Bologna was visited by excessive heat in 1779, so that many died of asphyxia, and to escape a similar fate the inhabitants took refuge in pits and caves underground. The month of July, 1793, was also one of intolerable heat. All the vegetation and the harvest withered up. The furniture in houses cracked and split, the meat became putrid almost under the butcher's hands. Hurricanes and earthquakes accompanied the intense droughts of 1811 and 1822. In some countries the earth delivered itself, under the contained heat, of hosts of field-mice, which ravaged the most fertile plains. Of these mice no fewer than 2,000,000 were destroyed in fifteen days in one country alone. In 1832 the fearfully hot weather in Paris was coincident with the cholera epidemic in which 20,000 persons died.



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Sanitary Institute of Great Britain, Newcastle, 1882. The Only Medal.
Sanitary Institute of Great Britain, Glasgow, 1883. Star Certificate. This Certificate is the Highest Award, and only obtainable by those who already hold the Medal of the Institute.
National Health Society's Exhibition, London, 1883. Silver Medal.
International Food Exhibition, London, 1881, Silver Medal. 1882, ditto.

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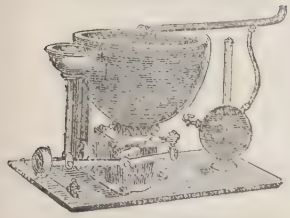

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TESTIMONIAL.

From EDWARD C. ANDERSON, M.D., M.A., Cantab.,
Tom Law, Darlington, November 5th, 1880.

To Messrs. Krohne & Sesemann.

Gentlemen,—I have the greatest pleasure in acceding to your request that I should, from my experience of the Martin's Bandages, testify respecting their excellence.

My knowledge of the quality of Bandages of English make is limited; for, having, about fifteen months back, applied bandages sent to me from this source, and noting the evident irritation and discomfort produced by them—so great, indeed, that each patient soon discontinued their application—I ceased to recommend and use them.

In April of this year, I for the first time used the original Martin's Bandage, and since then I have applied them and none else to the limbs of nearly twenty persons suffering from a variety of complaints, such as ulcers of the leg of old standing, which had resisted all treatment for more than fifteen years; varicosities (the unsound leg of one patient, a man, measured 25 inches round the calf, against 16½ inches, the size of the sound leg; and his condition was such that, before coming under my care, it had been by his former attendant seriously debated whether or not the leg should be amputated to save life. This man goes about wearing a 21-foot Bandage, and the calf of the unsound leg now measures 18 inches); erysipelas, œdema, rachitis, &c.

Suffice it that all, both young and old, have been enabled to wear them with comfort; most of the cases under treatment have been cured, all benefited, and many although well, continue to wear them on account of their safety and the support they give rise to.

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No. 25.] FRIDAY, OCTOBER 24, 1884. [*Gratis with* "HEALTH."

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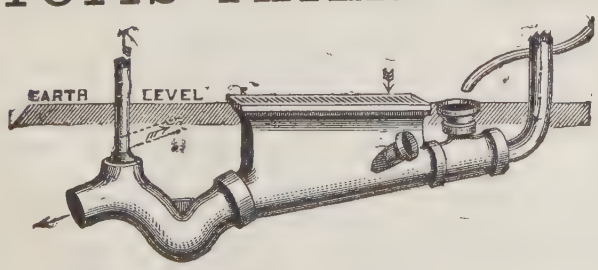

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See "Health," Aug. 22, 1884.—Page 316.

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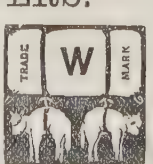

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"International Health Exhibition" Supplement to

HEALTH

A Weekly Journal of Domestic and Sanitary Science.

EDITED BY DR. ANDREW WILSON, F.R.S.E.

"Reason's whole pleasure—all the joys of sense—
Lie in three words, HEALTH, PEACE, and COMPETENCE."—*Pope.*

No. 25. FRIDAY, OCTOBER 24, 1884. [*Gratis with* "HEALTH."

THE INTERNATIONAL HEALTH EXHIBITION.

TWENTY-FIFTH NOTICE.

MACHINERY IN MOTION.

THE complete and varied collection of machinery in motion which fills the Western Gallery and its Annexe refers to almost every department of which the Exhibition consists, and might very well have been included in those classes, but for the fact that we have, in this series of notices, followed strictly the order of the official catalogue. The first stand is occupied by Messrs. H. Podger & Sons, Bromley, Kent (1,120), who exhibit a machine for ironing collars, cuffs, and other small articles. The apparatus is noiseless, and heated by steam or gas, and is driven by power. It is stated that at a cost, when gas is used, of 2d. per day, 180 dozens of collars and cuffs may be ironed, and that the method prevents the possibility of the linen being injured. In the next stand (1,121), Messrs. F. W. Reynolds & Co., Crown Works, Edward-street, Blackfriars, show a machine for raising water and other liquids by steam-pressure; whilst side by side with this (1,122) is a working model of a patent high-pressure steam disinfector, exhibited by Mr. Washington Lyon, Leo-street, Old Kent-road. The principle involved in this invention is the destruction of the germs of disease, and all forms of insect life, by the introduction of steam under regulated pressure, by which moist heat is obtained without risk of burning the article operated upon. The fitting of laundries is treated (1,123) by Messrs. T. Bradford & Co., 143, High Holborn, who have complete hand and steam-power laundries in full work, and also a collection of washing machines, centrifugal drying machines, wringing apparatus, and other forms of domestic labour-saving appliances. Some very handy wringing-machines, made of india-rubber and galvanised iron, are also to be seen at the stand (1,124) of Messrs. W. Williamson & Co., 133, High Holborn. Air-pump ventilators are shown by Messrs. R. W. Hale & Co., 12, Challon-street, N.W. (1,125), and by Mr. Robert Boyle, 164, Holborn Viaduct (1,126). Of the latter system of ventilation we had occasion to speak favourably when noting Mr. Boyle's exhibit in Class XXV. Messrs. T. Harvey & Co., 89, Wandsworth-road (1,127), exhibit a process of soap-making suitable for domestic purposes. It consists of simply mixing together Greenbank's double-refined 98 per cent. caustic soda (for which Messrs. Harvey & Co. are agents) and the surplus grease from the kitchen; and the soap is made. The exhibit is admitted into the machinery-in-motion department by virtue of a stamping apparatus used for putting the name on the cakes of soap. Messrs. Cleaver & Sons, Red Lion-street, W.C. (1,128), show their excellent toilet and disinfecting soaps, of which we have already spoken, partly in process of manufacture. Mr. James Howorth, Farnworth, near Bolton (1,132), shows a number of radial screw and other appliances for ventilating purposes, and Mr. Geo. Scapare, 103, Wellington-buildings, Chelsea Bridge-road (1,133), exhibits a hot-wind generator and Stewart's high-pressure blower, in which two blades revolve within a cylinder at varying velocities and round a central shaft. The velocities are controlled by an eccentric crosshead acting upon crank arms outside the cylinder, and in this way the air drawn in at every revolution is again forced out.

The Consolidated Electric Company (Limited) (1,135) illustrate their system—known as the "B.K.T."—of house-to-house lighting by electricity, the supply being obtained from a central station through storage batteries placed in different parts of the district to be lighted. Some of the aquarium is lighted on this principle, but we do not know that it has been put into practical application elsewhere. Messrs. R. Waygood & Co., Falmouth-road, Great Dover-street (1,136), have some working examples of lifts and hoists, and also a model of a hydraulic-balanced passenger-lift. Some of their safety appliances are ingenious and effective. An automatic means of obtaining a reciprocating motion of a lift is also shown. A very attractive stand is that (1,138) of Messrs. F. Allen & Sons, Cawl-road, Mile End, the well-known makers of confectionery. We presume that in a Health Exhibition no deleterious matters would be allowed to be introduced into any of the articles manufactured, and so the bearing of this exhibit on the question of health must be assumed to be in the fact that non-poisonous colouring only is used. We have no information to the effect, but anyway the stand is a source of great attraction to juvenile visitors.

Messrs. J. & J. Colman, of Norwich (1,140), the famous manufacturers of mustard, have a most extensive stand, which takes up a large proportion of the centre space in the gallery. Here is illustrated, to the great satisfaction of the bulk of the visitors, the secret and mystery of the production from the seed to the flour as used in our kitchens. The process is simple—so much so, indeed, as to excite wonder as to the reasons which induced the Commissioners to award Messrs. Colman so much space—and consists in simply crushing the seed between horizontal rollers and passing it to a sort of stamp mill, after which the produce is sifted and packed for delivery. Mr. John J. Royle, 27 and 29, King-street West, Manchester, exhibits (1,141) steam-kettles, ovens, steam traps, and a patent "Pendu light," a device which, without extra fittings, brings down the gas light from the chandelier to a level with the person reading or working. The apparatus is provided with a green shade, and may be heartily commended as a means of utilising gaslight to the greatest possible extent, and of avoiding undue strain on the eye-sight.

The ASSOCIATION FOR THE SUPPLY OF PURE VACCINE LYMPH, formed 1877 3, Hemmings-row, St. Martin's-lane, London, W.C.; near Charing-cross Telegraph Office, 448, West Strand, W.C. Sole agents for Dr. WARLOMONT'S Calf Vaccine.—[ADVT.]

The whole, or nearly the whole, process of jam-making is illustrated (1,144) by Messrs. Edward Pink & Sons, Staple-street, Boro', whose exhibit seems to dispel any doubts the public might otherwise have as to the perfect care and cleanliness which is exercised by the great makers in the production of an article of household consumption which in the "good old days" was invariably made at home. Messrs. Beare, Goswell, & Co., 81, Southwark-street (1,145), exhibit Faulder's patent gas-heated coffee-roaster. Gas is said to offer many advantages over coke for the purpose of coffee-roasting. The machines exhibited on this stand are easily placed and require no brick-setting. A small centrifugal fan is used for forcing air in with the gas, so as to produce as nearly as possible perfect combustion. The machine shown is rotated by power, and is suitable for a shop or large establishment. Smaller machines, to work by hand, and better fitted for ordinary domestic use, are made. Meat-cutting, mincing, sausage-making, and such like machinse, are shown by Messrs. S. Nye & Co., 143, Oxford-street (1,146); Messrs. W. & T. Ovens, 54, St. John-street, Clerkenwell (1,147); Mr. J. Morson, 35, Florence-street, Islington (1,149), and others.

There are at least three very extensive collections of machinery used in the manufacture of mineral-waters and in the bottling trade. The first is that of Mr. J. Galloway, Bolton Brass Works, Bolton (1,148), who exhibits a "Leviathan" soda-water machine, capable of producing 60,000 bottles a day, and other similar machines, each of a diminished capacity, together with filling-machines for every kind of cork and stopper, gas generators, gas purifiers, and apparatus for producing fruit syrups. The second exhibitor is the firm of Barnett & Foster, Niagara Works, Eagle-wharf-road (1,156), and they have a complete factory or workshop showing the whole process of manufacture. The exhibit comprises the "Prize Medal" soda-water machines and "Niagara" soda-water machines, and also Foster's patent beer aërating machine, bottling machines, bottle-washing machines, filters, steam coil, syrup-making stage, sulphuric acid cistern, &c., the above fixed in their respective positions and in action. The large "Niagara" soda-water machines are fitted with glass plungers and electro-silvered in all parts. This arrangement dispenses with the mechanical agitator, and introduces other improvements for preventing the possibility of metallic or other impurities in waters. There are also some English laager beer fountains, similar in appearance to those used for the German beverage. The novelty is that any ordinary light English ale can be used. An iron bottle of compressed carbonic gas is attached by a tube to the top of the barrel, and a slight pressure is put on the top of the ale occasionally. This enhances the keeping properties of the liquid, besides allowing the ale to be drawn from the fountain. The firm further show a bottle-labelling machine. The labels are not handled after once being put into the holder; a roller revolves, and, being charged with paste, passes over the label; the bottle is then pressed on to the paste label and rolled over it, it then attaches itself to the bottle. Samples are also shown of bottled beer under Foster's Patented System by which alcohol is extracted and fermentation stopped; but it is fully impregnated with carbonic-acid gas, making it ready for immediate consumption and giving it lasting properties. The "London Made" Syphon Bottle (patented and registered) is on view here. The tops are of pure tin and silvered, the glass is of an improved form and colour, the base or foot is made with a groove in it to catch drips from the spout as they run down the side; the working parts are simple, and the action in opening easily done by a child. Finally, there are exhibited Foster's Patent Screw-stoppered Bottles, for beers, mineral waters, pickles, &c., from the peculiar shape of the joint formed between the bottle and stopper, it is easily made by a slight turn against any ordinary pressure; a very small face only is exposed to the liquid of rubber, or cork can as easily be used. The third exhibitor is Messrs. Hayward, Tyler, & Co., 84 and 85, Whitecross-street (1,158), whose mechanical improvements are all designed primarily to avoid the slightest chance of contamination. These apparatus are all fitted with their tubular saturator for insuring perfect aëration, and their machines, notably an "Arctic," equal to the production of 3,000 dozen a day, are excellently finished. The complete process of manufacture by mechanical means is very interesting, all the processes of filling, corking, and wiring, being now performed by machinery. Macdonnell's patent automatic filling and corking machine, is wonderfully perfect in the simplicity of its action, and the regularity with which it turns out some sixty dozen an hour of the very highest quality, with only one youth to attend to it. It has been found by experience that the waters produced by this system are not only more regular, but much higher in quality, than those turned out by hand. We should also mention, as dealing with a cognate subject, the exhibit (1,152) of the British Syphon Manufacturing Company, 2, Gresham-buildings, and that (1,153) of Messrs. Dowes, Clark, & Co., Frith-street, Soho, makers of marble in cream fountains and aërated waters of various descriptions.

The Normandy's Patent Marine Aërated Fresh Water Company (Limited), Custom-house Station, Victoria Docks (1,159), are the makers of machinery for producing good cold drinking water from sea or other impure water for use, more especially on board ship. One ton of coal yields by this process 23 tons, or 5,100 gallons, of distilled water, with boilers evaporating 9 tons of water per one ton of coal. The water so produced is distributed at this stand, and seems to possess all the qualities of good drinking water. Messrs. F. C. Hancock, of Dudley, send (1,161) specimens of a new gas cooker which may be seen in operation. The shelves revolve under the case, so that the effect of roasting is produced, and the heat is equalised to prevent scorching. Some admirably-made and ingenious motion drawings shown (1,167) by Messrs. H. & T. Batchelor, West Kensington, have doubtless proved of interest to engineers and visitors of a mechanical turn, illustrating as they do the action of steam in engines of the largest class. Messrs. Harry Aublet & Co., 71, Scrutton-street, Curtain-road (1,170), are makers of a machine which may be called a wholesale cutter-out, and which is used in large ready-made clothing establishments. The apparatus will cut several thicknesses of cloth, and consists simply of a band-saw or a band straight-edged knife worked by power or hand. The saw, or rather serrated knife, is used for corduroy, moleskin, or other thick materials.

The Blackman Air-Propeller Ventilating Co., 57, Fore-street (1,173) exhibit forms of their air-propeller, the largest being 48 in. in diameter, and capable of moving 35,000 cubic feet of air per minute with 2 h. p. A small apartment is fitted up, which will be ventilated by a 48-in. propeller blowing air in, whilst a 36-in. propeller exhausts from the room. A 16-in. propeller discharges into the apartment through a distributing apparatus, and is driven, by an electro-motor, through the current used for lighting the Exhibition, or by a galvanic battery. In the application to factories and workshops, this apparatus appears to be capable of working with much effect. An ingenious machine for cooling and moistening the air in large buildings, and called the Exchangeur (Saladin's patent) is exhibited (1,175) by Messrs. H. Slopes & Co., 24A, South-

wark-street. A perforated metal cylinder is half immersed in a trough of water, and is then caused to revolve. Air is driven by a fan into the interior of the revolving-cylinder, and, escaping through the wet-perforated walls, is cooled more or less according to the temperature of the water. The dryness of the air supplied also affects the result, as heat is absorbed by any evaporation of moisture that takes place. Several of the perforated cylinders may be placed one inside another to increase the cooling surface of the apparatus. Another interesting appliance shown here is "Schaffer's Magnetic Screen." It is used for extracting from wheat, barley, malt, rice, &c., the small pieces of iron and steel which, since the introduction of machinery to agricultural purposes, are often found in grain. These get into the mills, and are often a source of considerable danger, besides the damage done to the flour by the finely divided metallic particles. This screen appears to be very successful in arresting these, one working in Messrs. Courage's brewery not long ago securing a 1 lb. iron weight. Samples of metal arrested in this way are shown on this stand in great numbers. Mr. W. A. Gibbs, Gibwell Park, Chingford (1,169) shows a working model of the patent wheat dryer, as used on the estates of the Duchy of Cornwall and by many importers and large millers throughout the country. The apparatus consists of a brick casing in which a coke fire is made, by which air is heated, and is then carried by a centrifugal fan into air-ducts travelling through a sloping revolving cylinder. The grain or other substance to be operated upon is fed into this cylinder by means of a hopper. The cylinder is lined with a number of cells. As it revolves the grain is poured out of these cells down a series of inclined planes formed by air-ducts. In this way a gentle but continuous motion is obtained. Besides conditioning grain the machines have been used for drying tea, vegetables, cocoa, starch products, chemicals, &c. An especially large machine has lately been made for drying the apple-pulp which remains after cider-pressing. Messrs. H. Aland & Son, 46, Commercial-road, Lambeth, show (1,171) a novel hand or power ventilating fan, which seems to be especially adapted for ventilating haystacks—a process which is now largely resorted to. The fans are mounted on an iron frame fitted with wheels in front and two handles for pushing the whole along, very like a portable garden watering machine. The firm also show large fan-blowers and exhausters for collieries. Large numbers of washing and wringing machines are shown in operation in the gallery, most of which have been already noticed by us in their respective classes.

In the Western Arcade there are several sewing-machines in full work, and a long stand (1,197) at which Mr. Henry Heath, 105, Oxford-street, shows the full process of the manufacture of the felt and silk hats for which he is so well known. His elastic soft-banded felt brim to silk dress hats is a luxury which can be appreciated but not described. Messrs. Keirley, Beard, & Co., 115, Newgate-street (1,220) exhibit a small machine by which the process of fastening the pins upon the sheets of paper on which they are sold is carried on. There is also a case containing samples of the varied manufactures of the firm. The show of needles embraces every variety, from the large packing-needle and the needles of upholsterers to needles for the blind, including "sharps," "betweens," darners, and needles for crewel and embroidery work. To the right and left of the central or back part of the case are collections of the firm's patent hairpins, so made that they maintain a firm place in whatever position they may be put. Below these, and also in front, on a small platform, is a representative collection of all the varied forms in which the needles are put up, from the simple packet of ordinary commerce to the ornamental and artistic fancy boxes which find their way into every lady's work-basket. Dr. Ward Cousin's surgical and universal safety pin, with handle, is also shown here, Messrs. Kirby, Beard, & Co. being the sole manufacturers. Its special feature is the handle, which gives complete control over the pin, assists in directing the point, and renders its introduction and withdrawal easy and instantaneous—points in its favour which render it invaluable for use by surgeons as a bandage and dressing holder. Another new invention, recently patented, of which this firm are also the sole manufacturers, is an improved trousers catch or holder, for keeping the trousers from soiling and fraying at the edges. This catch is in the form of a hook, one end of which is attached to the tag at the back of the boot, the edge of the trousers being slipped into the other part. The trousers hang quite naturally, and the hook is almost entirely hidden beneath them.

In the Western Annexe there are further displays of machinery, Messrs. G. T. Blundell & Co., West India-row (1240), leading the way with their patent Waterwitch pump for water supply and sewage disposal. At the next stand (1,241) Messrs. Thos. Christy & Co., 155, Fenchurch-street, show an artificial system of rearing and hatching fowls. The system shown is that introduced by Miss May Arnold, and is a development of the French method which for many years was, and probably is now, successfully moved on a commercial scale. Hot water is used for supplying the necessary heat, so that a uniform temperature can be obtained. The eggs are cooled *in situ* by a flush of air, and the nest is at all times stationary. The large number of deformed chicks obtained by the old form of apparatus is attributed to the disturbance of the eggs in the process of hatching. Messrs. Christy's exhibit is a pretty and interesting one, but appears a little out of place in the machinery-in-motion department. Mr. Whiteley, the "Universal Provider," of Westbourne-grove, shows (1,250) an ingeniously-contrived van for the conveyance of provisions. The van is fitted with a ventilating fan which works direct from the wheels, the motion of the vehicle keeping the machinery at work and replenishing and cooling the air within.

Messrs. Lawrence & Co. (Limited), 22, St. Mary Axe (1,253), have a collection of their capillary refrigerators for cooling milk. The action of this apparatus may be reversed, and it can be equally well used for heating purposes. In this way it is applied for concentrating syrups, juices, and such matters. The most interesting exhibit on this stand, however, is an ingenious machine by which ordinary fat can be globulated, so that it will become thoroughly incorporated with milk. With one of these machines skim milk can be enriched, the inventor says, so that it will produce excellent cheese. Refrigerator chambers for the preservation of flesh food are shown (1,248) by the Haslam Foundry and Engineering Company, Derby, who exhibit a patent dry-air refrigerator, to discharge 18,000 feet of air per hour at 60 deg. below zero; by (1,249) the Committee of Importers of Australasian Frozen Meat, 14, Finsbury-circus, who show the freezing-chamber and thawing-chamber meat-store used by them; and by Messrs. J. & E. Hall, Dartford Iron Works (1,255), who exhibit patent cold dry-air machines of different sizes.

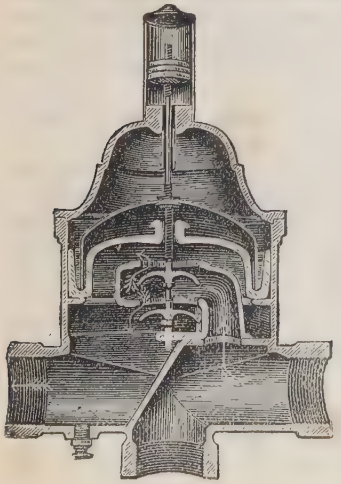
Messrs. Hughes & Lancaster, City-road, Chester (1,254), exhibit Shone's pneumatic ejector, an apparatus by which an occasional flush of sewage is obtained in place of the sulliage being allowed to flow gradually into the sewer, and so be likely to accumulate and create an obstruction. The ejector consists of an air-tight receiver into which the

sewage gravitates, and by the filling of which a suitable mechanism is called into play to admit a charge of compressed air, and so force the sewage to any desirable height or distance, according to the pressure used. In the Exhibition an air-pump such as is used for the Westinghouse brake is employed to get the required pressure. The system was applied two years to the purpose of removing and carrying out to sea the sewage of Eastbourne. It is also in use in some other towns for removing sewage and other purposes. It is said to be very well adapted for lifting water in factories, mines, &c. In Worthing it has been applied for lifting sea-water to water the streets and flush the sewers. Shone's flush-tank or hydraulic house-sewage ejector is also shown on this stand. It consists of a tank for the reception of all domestic waste liquids, and into which the discharge from the water-closet passes directly. From the bottom of the tank a pipe is led which passes upwards, and is bent over the side into a syphon, the long leg being connected with the house-drain. A tumbling basin placed above receives a stream of water from a special pipe, or is fed by the waste water of lavatories or baths. When the tumbling basin is full it turns over automatically, and in doing so fills the syphon, which in turn will empty the tank on any sewage matter that may have collected in it. In this way it will be seen that a periodical flush is obtained in place of the feeble and attenuated stream from which so many evils arise. Suitable ventilating pipes are placed in the ejector ; the communication between it and the sewer is trapped in the usual way.

Of the bakeries section, which consists of twelve exhibits, it is only necessary for us to say that the latest applications of steam machinery to the production of pure bread are shown, and that the bread which has been made and sold by thousands of loaves at the Exhibition has been manufactured from the best materials, and in a manner to insure perfect cleanliness and absence from contamination.

The crematory planned for Chicago is to cost about 25,000 dollars, and is to have three retorts—one for men, one for women, and one for children. The projectors say they will allow the remains of no malefactor or pauper or disreputable person to be incinerated in them.

Ventilation of the Offices of the *Daily Telegraph.*—In this room one hundred and seventy compositors work throughout the night, and seventy argand burners light the desks. The complaints of the men and the sufferings were very great. The proprietors, desirous of remedying this state of things, under the advice and direction of Messrs. Arding, Bond, & Buzzard, have put a new and lofty roof, which is covered by a lantern along its whole length, the windows on both sides of the lantern opening in two divisions by lever bars at each end of the room. This provides an ample outlet for the vitiated air in summer time, or in calm, moderate weather, when open windows are unobjectionable. Fresh, purified air, either cold or warm, is drawn in by a 16″ Æolus Waterspray Ventilator fixed in the basement. In warm weather this cool, fresh air is used to keep down the temperature to an agreeable point, while in winter the fresh air can be raised in a few minutes to a temperature of 100° by simply lighting the gas-burners around the tubes through which the fresh air passes. Thus a continual supply of fresh air equal to five times the cubical contents of the room is afforded every hour and of a temperature adapted to the sensitiveness of men engaged in sedentary occupation. Returning to the subject of extraction, when the weather is such as to render open windows undesirable (and in this climate of ours such an objection certainly obtains during eight months out of the twelve), the vitiated air is drawn off by two 16″ Æolus Waterspray Ventilators, which have their communication with the composing-room through the panels occupying the position of two of the side lights of the lower, these are continued by sixteen galvanised shafts outside the roof, entering the composing-room through the roof by the plate, and descending through all the floors into the basement. In each of the last six feet lengths of these shafts a water-spray is fixed ; by simply turning the tap, a powerful exhaust is immediately set up, dragging down the vitiated air from the composing-room into the basement. Thus a continual change of atmosphere is ensured for the composing-room, although doors and windows be tightly closed. Another peculiarity in this application of the water-spray as an exhaust is the fact of the upper part of the shafts falling down the slope of the roof being exposed to the action of the cold atmosphere outside, this instantly condenses the carbonic acid held in suspension in the heated air, which by its own gravity assists the downward current. Thus condensation, a feature which in automatic exhaust ventilation is always found to be an obstacle and a drawback, is here impressed into the service of the cause. A large portion of the vitiated air drawn off by the Æolus from the composing-room is condensed and absorbed by the sprays, and passed off with the waste water. The residuum, which is almost wholly pure air, passes through the shaft-room into the engine-room, which is again emptied by another exhaust Æolus discharging into the courtyard.



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